THE DILEMMA OF REGULATING PRIVACY

Planning Regulations, Privacy and House Form; The Case Study of Low-Density Single-Family Dwellings in Saudi Arabia.

A thesis submitted for examination for
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By:

Waleed Kassab AlHemaidi

Development Planning Unit
The Bartlett School
University College London

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Abstract

The object of this research is the exploration of the effects of planning regulations on house form and privacy in low-density single-family dwellings (villas) in the context of Saudi Arabian cities. The research explores two main issues: firstly, the importance and the effects of privacy violation between neighbouring villas through overlooking on their residents' behaviour and use of house spaces; and secondly, to investigate the residents' preferred house form.

To assess these two issues practically, seven suburbs from three different cities, representing large (Riyadh), medium (Tabuk) and small (Haqil) urban centres in Saudi Arabia were selected for carrying out a questionnaire survey. The selection of these suburbs was intended to represent, as far as possible, the different social groups in Saudi Arabian society. The population of the survey was the villa residents in these suburbs, who were asked questions regarding their use of house yards and windows, and tested on their awareness of planning regulations, and the effects of these regulations on house form and degree of privacy. The respondents were also asked about their preferred house form.

The results indicated that privacy is considered an important issue by residents, and the effects of privacy violation, through neighbours overlooking each others' houses, were very clearly seen on the residents' reduced use of overlooked yards, compared to those not overlooked, as well as through the construction of extra fences to block overlooking from neighbouring houses. Although the residents showed a high degree of awareness about the effects of the villa house form on the high degree of overlooking, they showed a far greater preference for living in villas rather than attached courtyard house forms.

The final conclusion of the research demonstrates the failure of the present planning regulations to promote an acceptable house form that allows for a reasonably sufficient degree of privacy protection. While some research and housing schemes have promoted house forms different from that of the villa, these have proved to be unacceptable and were rejected by residents. The recommendation of the current research is that efforts to find a solution to the problem should instead focus upon means to reduce the effects or degree of privacy violation between neighbouring houses, while maintaining the popular house form of the villa.

DEDICATION

To the memories of my father,
Mohammed.
To my devoted mother Fawzia,
and most loved wife
Wadha.

Acknowledgement

The greatest thanks is owed firstly to Almighty Allah for guidance and help through life and progress of this research.

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INTRODUCTION AND BACKGROUND

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1-1 Introduction

The modern low-density single-family dwellings in Saudi Arabia are undergoing a constant privacy violation problem. The overlooking between adjoining houses violates the privacy of the houses and their residents. Since these houses are designed according to an out-ward looking concept it allows any individual looking out of his/her first floor windows to have unobstructed view of the yards and windows of the adjoining neighbours.

The overlooking between neighbouring houses is considerably affecting the residents' behaviour and comfort in the overlooked house. This violation of residents' privacy in their house is regarded as an important issue in their mind. This has further caused the residents to reduce their use of the open spaces (yards) within the house, or modify the physical aspect of the house, or simply abstain from using these overlooked yards, particularly for activities that involve female members of the family.

Several studies have investigated the problem of privacy violation in the Saudi Arabian house. While al-Hathloul (1981), for example, was one of the very first researchers to identify and discuss this problem, others, like al-Saati (1987), al-Saeed (1989), al-Hemaidi (1991), Bahammam (1992) have examined the context, sources and the evidence of this problem. The added value of the present study to the previous ones is to build upon their findings and conclusions, as well as to continue and explore further the issue of privacy hither to not researched. To that end, the main aspect here is to provide a deeper and more comprehensive analysis of the residents' perception of privacy, as well as the relationship between planning regulations and house form and to examine its effect on the degree of privacy violation.

During the last four decades, Saudi Arabia has experienced rapid growth in urban development. For example, Riyadh has, in little more than 40 years, been transformed from a mud-wall town of 25,000 inhabitant to an international metropolis of 2.5 million.

This growth is not based on traditional urban planning principles, which have been followed in S. Arabia. for many centuries. The traditional built environment is the product of a long series of pragmatic experiments and adaptations, expressing the cultural and social values of its people. As such it embodies the local character and identity of the people, and native response to the people's needs, beliefs and traditions, as well as a response to the local climate.

The courtyard house forms the basic unit of the traditional built environment. It is grouped in clusters or small neighbourhoods, each one consisting of 200-250 houses, and a population of 1000-1500 people. A local mosque[1] is always in the centre of the cluster or the neighbourhood, and serves as the focal point of the different inhabitants' activities. Local mosques are evenly spaced throughout the city built environment, with an average distance of about 100 meters between one mosque and another, forming several clusters.

The traditional courtyard dwelling is generally characterised by one or two stories in height, and attached to all its adjacent neighbours' dwellings, thus avoiding locating any open space for front, side or backyards in the house for privacy and climatic reasons. The courtyard is always situated in the middle of the house, and plays a central role in the daily life of the family. It is the place where

family activities take place without their privacy being diminished by overlooking from adjoining dwellings. Almost all the dwelling's openings are focused inwards looking towards this courtyard, only the reception room looks outwards onto the street, see Figure 1-1.

The segregation of domestic life, as well as participation in the economic and religious life of a community, reflects the Islamic culture and the religious beliefs of the people of Saudi Arabia. This has led to a clear separation between public and private life, which is, perhaps, the most significant social characteristic of Islamic culture, as well as the most unique characteristic affecting the physical environment in general, and the house form in particular, in the traditional cities of Saudi Arabia.

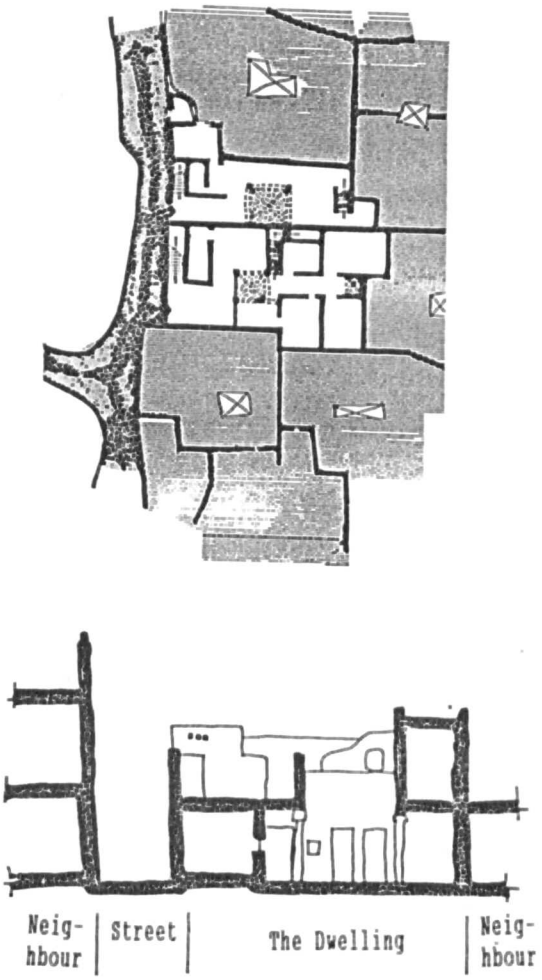

Figure 1-1: Traditional courtyard dwelling looking inwards, and building without setbacks which protects the dwelling from overlooking by adjoining dwelling.

This type of environment is disappearing very rapidly. Even those areas which have survived are no longer occupied by their original residents, if they are inhabited at all. Most of the traditional parts of the Saudi Arabian cities have been either neglected or demolished and replaced by new modern concrete buildings of varying heights and architectural character. New networks of wide and straight streets were laid down, to allow for the movement of cars into the centre of

neighbourhoods, which led to the tearing down of any house standing in the way of the new streets.

During the 1950s and 60s, Riyadh, along with all the other cities of Saudi Arabia, went through tremendous urban and population growth. This growth caused major changes in the city's physical structure as well as its socio-economic structure, resulting from the oil wealth. At that time, comprehensive urban planning was unknown to the government authorities, nor was there enough time to stop this development or growth until foreign planning principles were tested for their suitability for Saudi Arabia. Therefore, faced by this massive growth in both population and urban development, and being short of sufficient time to develop the traditional planning principles to cope with this growth, the authorities sought the help of foreign expertise to solve the problem.

In the beginning, these experts failed to understand the local traditional built environment or the cultural background of its inhabitants. The evidence of research and literature reviewed by this study indicates that the first schemes of design and planning were conducted by foreign architects and planners, sitting in their offices a long way from Saudi Arabia and the inhabitants they were designing for. Moreover, even when these architects or planners were brought to the Kingdom, they fell short of understanding, or co-operating with, the local culture and its built environment values.

The first change in Riyadh came in 1953, when King Saud made a decision to transfer all the government agencies from Makkah to Riyadh. This was followed by the decision, to house these transferred government agency employees to a completely new suburb in Riyadh. The site of al-Malaz, 4.5 km north-east of the city, was chosen to house these employees. It consisted of 754 detached dwellings (Villas) and 180 apartments.

Al-Malaz was planned by foreign architects according to a gridiron pattern with large square lots, and a hierarchy of wide streets. It also contained many public buildings and services which were introduced for the first time to the city. These included such features as a public library, municipal hall, public garden, race course, football field, public zoo, and buildings for the first university in the Kingdom. In other words, it was a city in itself with an area of 500 hectares, several times the size of the old city.

A new concept of urban form of residential dwelling was introduced in al-Malaz, the "Villa". This was a free standing concrete dwelling, on a large square lot of 25x25m., two storeys in height. It was built according to setback requirements from four sides, all openings were oriented outwards to the front, back and side yards, with a limited site coverage of 60% of the site area, see Figure 1-2.

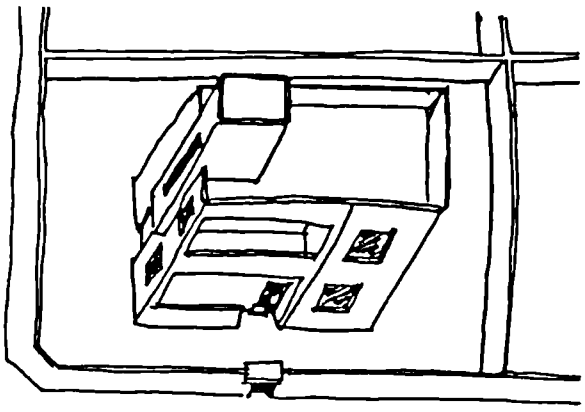

Figure 1-2: The Villa with reversed house orientation was implemented as the standard urban form in cities of the Kingdom.

The new urban pattern produced a population density of one fifth of the traditional city, allocated three times the traditional area assigned to streets, and provided only half the area reserved for private use. The wide grid pattern streets of al-Malaz are bounded by continuous high concrete walls of the dwellings on both sides of the street. Very limited social and cultural activities take place, children play inside their houses since it is no longer safe and sheltered to play in the streets.

The free standing villa, impressive looking and with services and amenities such as water and sewer systems, has become the symbol of social prestige, while

the traditional house, with its lack of services and amenities, was identified as of low-standard by the residents at that time.

The gridiron, therefore, became the new standard urban pattern, with the villa as the new house form and type; both became the model of urban planning to be followed and copied elsewhere in Riyadh and every other city, town and village in the Kingdom during the 60s and 70s until the present time. Today, the villa is almost the only low-density single-family dwelling type in the areas built by the private sector, and in which the majority of Saudi Arabians reside. It is also the most common type in the areas built by the government agencies for their employees, which account for roughly 10% of the total number of single family dwellings in the large urban centres.

Major cultural and climatic problems have emerged as a result of this new house form and its planning regulations. The introduction of setback regulations allow adjoining dwellings to open their windows outwards, constantly violating the privacy of the open space of surrounding dwellings. This violation inhibits the full use of these open areas for family activities, in a society where privacy of family life, especially of women, is a vitally important issue. Also, the setback provisions increase the area of the dwelling under direct sunlight and heat, which is extremely undesirable in Riyadh, due to the heat, see Figure 1-3.

It is now more than four decades since the introduction of the villa style and its planning regulations, and this design is still unsuitable both for the cultural values of the residents, and for the climate of Saudi Arabia. Obviously, the life-style now is very different to that which existed 40 years ago, with the introduction of modern machinery and services such as cars, aeroplanes, electricity, tele-communications and ease of access to all parts of the world. However, whereas these modern machines and services have had a substantial effect on various aspects of residents' life-styles, they have had a limited effect on residents' perceptions of their dwellings' privacy.

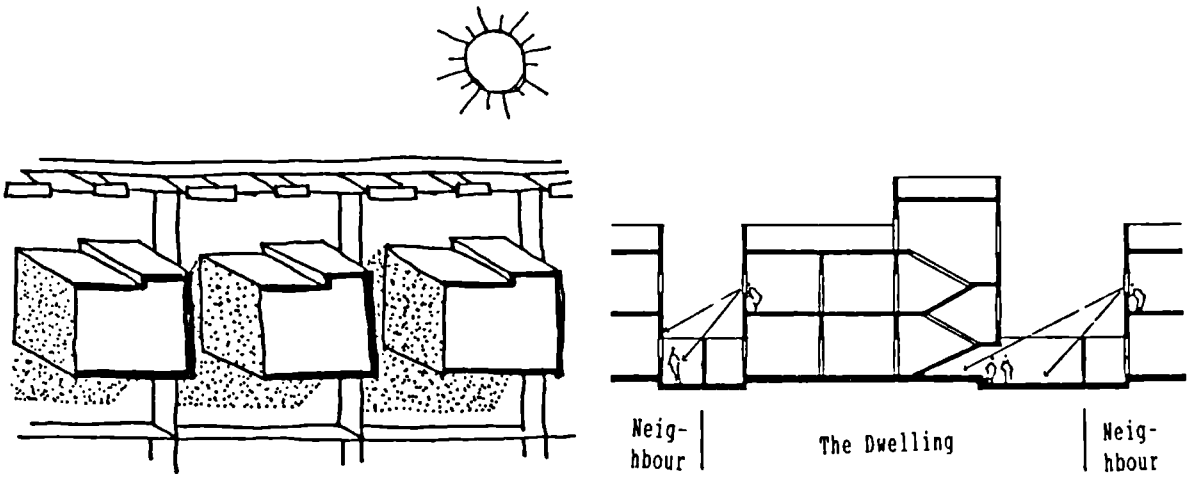

Figure 1-3: The front, side and rear yards are fully exposed to the sun and dust, and to direct observation by any adjoining neighbour looking through the windows to these yards in the Villa style.

The villa residents are much concerned about and dissatisfied with the violation of the privacy of their dwellings' yards, as a result of being overlooked by adjoining neighbours. The residents' dissatisfaction with this violation has affected both the physical appearance of the villa and the efficient and full use of dwelling spaces. The physical appearance of the villa is greatly affected by the construction of corrugated plastic and steel structures added on the top of the dwelling fence, or, in some cases, by the blocking of the second floor windows of the dwelling. The villa's outdoor spaces (the yards) are rarely used for family activities. Furthermore, the residents rarely open their windows when the room is in use, especially the bedroom and living room windows.

In a survey conducted by the author in 1990 in one of the modern residential districts of Riyadh, only 6 villa residents out of 61 stated that they use their yards for family activities, and only one of those 6 residents stated that women in his family use the yards regularly. Those few residents who use their yards for family activities are, most likely to be, the residents of dwellings which have been surrounded by a structure of corrugated plastic sheets, added on the top

of the dwelling's fence to protect the yards from being observed by adjoining neighbours.

The same survey also shows that less than a third of the villa's residents leave their living room or bedroom windows open, while the rest never or rarely open their windows. The reason for this is strongly related to the violation of privacy in these rooms when their windows are left open, due to overlooking by adjoining neighbours.

The villa house form and its governing regulations can not be taken as being internationally appropriate, rather they are a part of a whole foreign ideology and system which is based on and relates to a certain social and cultural context. To blindly copy some of these foreign principles and regulations and implement them in other locations, with different climatic conditions, and on people of different social and cultural backgrounds, means imposing these foreign social and cultural values and their ideology onto these people. Hassan Fathy (1972) states that a close analysis in the light of the latest findings of science would clearly show that many of the modern layouts in the Arab cities of today are far less functional and less modern than the old ones they replace in the name of functionality and modernity.

What was needed was not the replacement of the traditional planning principles by foreign ones in the name of modernisation and urbanisation, without questioning and examining their suitability, but a comprehensive study leading to an improvement of the traditional planning principles and guidelines, in order to cope with the modern amenities and utilities of the present day. In the cases where the municipal authorities decided to implement these foreign principles, then a careful examination of their suitability is most certainly needed, to modify and improve whatever is not suitable or appropriate to the country and its culture. This is not to say that tradition is the perfect solution and should not have been substituted; rather that the total neglect of traditional principles and the

implications of their meanings and values, will mean not only that our heritage, as Saudis, is lost forever, but that we shall have nothing worthwhile in exchange.

Only recently have planners and architects, in both government and private sectors, started to become aware of the social and climatic problems created by this imported house form and its regulations. As a result, several attempts have been made to revive the traditional courtyard house form. Most of these attempts have been on individual or small project scales, with very few on a district or suburb scale. Many studies and recommendations made by local researchers indicate the need to revive the traditional attached courtyard house form.

However, the question which is very rarely asked is whether the public really want or prefer to live in an attached courtyard house, rather than the present villa. The majority of research on the house form in Saudi Arabia assume that the Saudi Arabians would prefer to live in an attached courtyard house in comparison to a villa, as the courtyard house would give much more protection from neighbours overlooking. This assumption is based on the belief that privacy in the house domain is highly valued in Saudi Arabian society, which is found to be true by the current research, but there is little ground or evidence supporting the assumption of the preference for the attached courtyard house form to the villa form.

This assumption can be observed in quite a number of studies which review the problem of privacy violation in Saudi Arabian villas. Moreover, very few residential suburbs were planned and designed according to this assumption, one of them is al-Erija suburb in Riyadh, where the planning regulations outlawed the villa house form, and forced the residents to build their houses attached from both sides. However, about 4 years ago, the municipality had to revise its planning regulations in al-Erija, due to the large number of residents' complaints against this house form, and gave the residents the choice of building their houses according to the villa form.

The possibility of people preferring to build their houses according to the villa form and accepting to put up with the consequences of privacy violation is very seldom examined or researched. Only very recently has this question been raised, particularly after the failure of the adapted semi-attached house form in al-Erija, but still it failed to receive much attention or study. The examination of the reasons behind, and extent of, the preference for the villa, forms one of the main new findings of this research, which could be added to the general knowledge of urban studies in Saudi Arabia. The research findings provide evidence that both of the research hypotheses are valid, and accordingly a number of recommendations are made in conclusion.

1-2 Research Questions:

- To what extent is the privacy issue important in residents minds?
- Does the level of privacy perception and importance vary across the different social groups of residents in Saudi Arabia?
- To what length are residents prepared to go to in order to maintain their house privacy?
- Are residents willing to live in an attached courtyard house? Will they accept radical modification of the villa house form in order to restore their house privacy? Or are they changing their life-style to suit the existing villa form?

1- 3 Hypothesis:

Main Hypothesis:

- The Planning Regulations of Saudi Arabian cities applicable to the low-density single-family dwelling "villas" are decreasing the level of residents' privacy

Sub-hypothesis:

- Although privacy is considered an important issue by all residents across different social groups, the majority of residents would prefer to live in a villa and put up with its privacy violation rather than live in an attached house form.

Definitions:

Family: The group of people who are living together under one roof, and are considered to be of one household. The average household in Riyadh is 5 persons, and 6.2 persons for the whole Kingdom.

Planning regulations: The requirements for erecting a structure on a land plot applied and requested by the municipality, such as setbacks, site coverage limit and building height.

Low-density single-family dwelling: The low density house type (Villa) used by an individual family, which is the most common type in the Kingdom.

The Villa: The free-standing dwelling set back from all boundary lines of the lot, and usually of two storeys in height.

Privacy: The protection from direct visual observation of family members in their dwelling by overlooking adjoining neighbours.

Overlooking: The direct visual observation of a dwelling's private yards or rooms by any person from adjoining dwellings or in the public domain.

Social groups: the variety of community groups such as rural, urban, old, young, educated, uneducated, low-income, high-income.

1- 4 Methodology:

The starting point of the research took the form of questions motivated by the researcher's interest and former studies on a similar theme. Relevant literature was reviewed in order to sharpen the research questions, and the main hypothesis was formulated. However, in order to address the remaining questions, a sub-hypothesis was also formulated following the same procedure.

Three main variables were identified in these hypotheses: planning regulations, house form and privacy. These three variables and the relationships between them were analysed and researched in view of the available written literature. They were studied in the Saudi Arabian context, as well as other related contexts, particularly the Western context, from which the present planning regulations and the villa house form in Saudi Arabia originated.

There are two most common methodologies for approaching social research. The first is looking at the available literature to find out the necessary evidence that support the hypotheses. The second is forming or originating the needed evidence through empirical research.

Therefore, the first approach for testing the research hypotheses was through the available literature and prior research on this subject. The material and data constructed through this approach appeared to be not strong or sufficient, as no adequate and reasonable evidence that could approve or disprove the hypotheses was found. Therefore, it was found that the most suitable method able to create and produce the evidence needed was through the empirical approach.

The field survey was found to be the most suitable empirical method for this research, as other methods were found not relevant or of no great help for testing the hypotheses, such as computer simulations or laboratory experiments.

Conducting this method would provide a suitable and reliable source of the information and evidence required to test the hypotheses. The field survey would address the issues of the hypotheses and present them to the people targeted by the hypotheses. Hence, the reaction and response of these people would provide the necessary evidence for the research.

Accordingly, the field survey was formulated, and several issues concerning it were identified and defined, such as the targeted population, the chosen sample and the survey method and administration.

The field survey was formulated around 3 issues. The first was to measure the effects of privacy violation on residents' use of their house yards and the construction of extra fences. The second was to identify the degree of privacy perception in residents' opinions, and to see how this perception differs across the social groups. The third was to find the preferred house form in the residents' minds and measure their awareness of planning regulations and its effects on the degree of privacy violation.

The method chosen for collecting survey data was through the conducting of a questionnaire. This method was judged to be (is) safe and reliable enough to provide answers for the survey questions, given the limited time and resources available, particularly as a major part of the survey questions concerned resident's behaviour and knowledge. In contrast, to use participant observation techniques would have been very hard since this requires the presence of the researcher inside the house to record the resident's use of spaces, an impossible task in the society of Saudi Arabia.

There are several methods of conducting a questionnaire. These include a mail questionnaire, phone questionnaire, self fill-in questionnaire and interview questionnaire. The mail questionnaire was avoided due to the non-existence of a house mail service, as the numbering of street and houses has just recently been

established. The phone questionnaire was not possible because of the sensitivity of some questions for a conservative society.

The self fill-in questionnaire is regarded as more suitable for this society, but according to previous experience of researchers conducting this method in Saudi Arabia, including the researcher himself, this method tends to show less accuracy, in particular to questions like the ones addressed in this research. As the 'self fill-in' method involves the residents filling in the questionnaire in the absence of the interviewer, they tend to misunderstand some of the longer questions, or as they do not want to spend a long time in answering the questionnaire they tend to skip some questions or answer them wrongly and carelessly, especially in the case of a long questionnaire such as this.

Another important point is that the research questions require explanation, and the residents need to be shown illustration of some house forms, which would have been harder to understand only through drawings in the questionnaire, and without interviewer present to answer or clarify any question for the respondent. In summary, the most appropriate method was found to be the interview questionnaire, for the following reasons:

1- Delivering the question in person gives the respondent and the interviewer the chance to clarify any point that might not be clear to the respondent.

2- Writing the answers by the interviewer decreases the possibility of the respondent writing a wrong or inaccurate answer, due to a misunderstanding of the question.

3- The presence of the interviewer and asking the questions personally allows an appropriate amount of time to be allocated for each question, compared to the 'self fill-in' questionnaire, where the respondent might rush things and could miss or skip some questions.

4- The presence of the interviewer in the respondent's house, and communicating with him face-to-face, would result in increasing the confidence and co-operation of the respondent. This would in turn increase the accuracy of the data collected from the questionnaire. Also, it gives the interviewer the chance to take note of the attitude and comments made by the respondents, which tend not to be picked up by the self fill-in questionnaire. Very often these notes and comments are very helpful for the survey analysis, which was found to be the case many times in this field survey, particularly with the complaints of al-Erija residents and their anecdotes (especially the monkey story, see chapter 9).

5- As some questions involve showing the respondents models of house forms, as well as a demonstration of overlooking techniques, this method is the only one that allows such activities to take place during the questionnaire interview.

6- This method proved to have much higher response rates than the other methods of conducting a questionnaire.

As the focus of this research is the planning regulations, concerning the low-density single-family dwellings in Saudi Arabia, therefore, the target population of this field survey is the residents of the villas in Saudi Arabian cities.

The residents of villas were chosen because it is the most common type of house form for low-density single-family areas. Obviously, it would be impossible to survey all the villas in all the cities in the country, hence, three cities and seven residential suburbs were chosen for this survey. The basis for selecting these cities and districts, as well as the precise procedure followed in conducting the questionnaire, is explained in detail in Chapter 5.

The results of the survey findings are then presented under the 3 mentioned issues (effects of privacy violation on degree of residents' use of yards, the degree

of importance of privacy violation in residents' minds, the residents' preferred form of house and their awareness of the planning regulations effects on house form and privacy violation). Subsequently, a unified conclusion, that emphasises the evidence supporting and approving both of the hypotheses, is formulated and argued as the final out come of this research.

Furthermore, in the light of these findings and conclusions, a set of planning regulation policies is introduced in the form of recommendations. These recommendations aim to reduce the effects of privacy violation in villas, in order to make the villa house form, that is preferred by residents, more suitable for Saudi Arabian culture.

1- 5 Research Structure:

The current chapter serves as an introduction. The chapter starts by explaining the background to the topic of the thesis, presenting the research questions, hypotheses and methodology. It then gives a brief description of all the chapters, and concludes with a general background of the case study country, Saudi Arabia, and the three studied cities.

Chapters 2, 3 and 4 discuss and analyse the three research variables: planning regulations, privacy and the house form. The analysis includes a review of the development of these variables in the context of Saudi Arabia as well as other cultures and countries. Chapter 5 focuses on the methodology of the field survey, and how it was formulated and conducted. It also, discusses the method and techniques used for analysing the survey data.

Chapter 6 summarises residents' characteristics, in terms of their age, education, income level, house size etc.. Chapters 7, 8 and 9 contain the analysis of the survey findings. Chapter 7 discusses the residents' use of their houses

yards, windows and rooftops, as well as the residents' construction of extra fences in their houses to prevent overlooking violation, Chapter 8 focuses on the definition of privacy perception and the relationship of this perception to residents' characteristics. Chapter 9 presents the preferred house form according to residents' opinions, as well as their awareness of the effect of planning regulations and house form on privacy violation.

Chapter 10 is the concluding chapter. It brings together all the evidence supporting the research hypotheses and presents them in such a form as to provide solid ground for approving the hypotheses. It, also, presents several issues relating to planning regulations, such as the modification or replacement of these effecting privacy and responsible for its violation.

1- 6 Introduction to the Saudi Arabian Context

1-6-1 Geography

The Kingdom of Saudi Arabia encompasses four-fifths of the Arabia peninsula. It is situated at the 'cross-roads' between the three continents of Asia, Africa and Europe. Saudi Arabia occupies a large mass of land in south-western Asia, boarded by the Red sea in the west and the Arabian Gulf in the east, see the map in Figure 1-4.

This significant location was clearly perceived by George Lipsky during the beginning of modernisation in Saudi Arabia in the middle of this century, in his book **Saudi Arabia, Its People, Its Culture**, 1959. He wrote:

> "the potential importance of Saudi Arabia's geographical position is quickly apparent: it is strategically located between Africa and mainland Asia, lays close to the Suez Canal."[2]

Saudi Arabia occupies 2,240,000 square kilometres. It has varied topography including - beside the well-known desert - a green mountainous area in its south-western corner with Yemen. The terrain varies but on the whole it presents a barren and harsh appearance with salt flats, gravel plains and sand dunes, but with no lakes or permanent streams or rivers. In the south of the country is the famous Empty Quarter, or al-Raba' al-Khaly, the largest continuous sand desert in the world. It is linked to another large but less sandy desert, the Dahana and al-Nufod in the east and north of the country respectively. The western region consists of mountains, al-Sarwat, which rise to over 9000 feet in some places, and stretch all along the Red Sea coast.

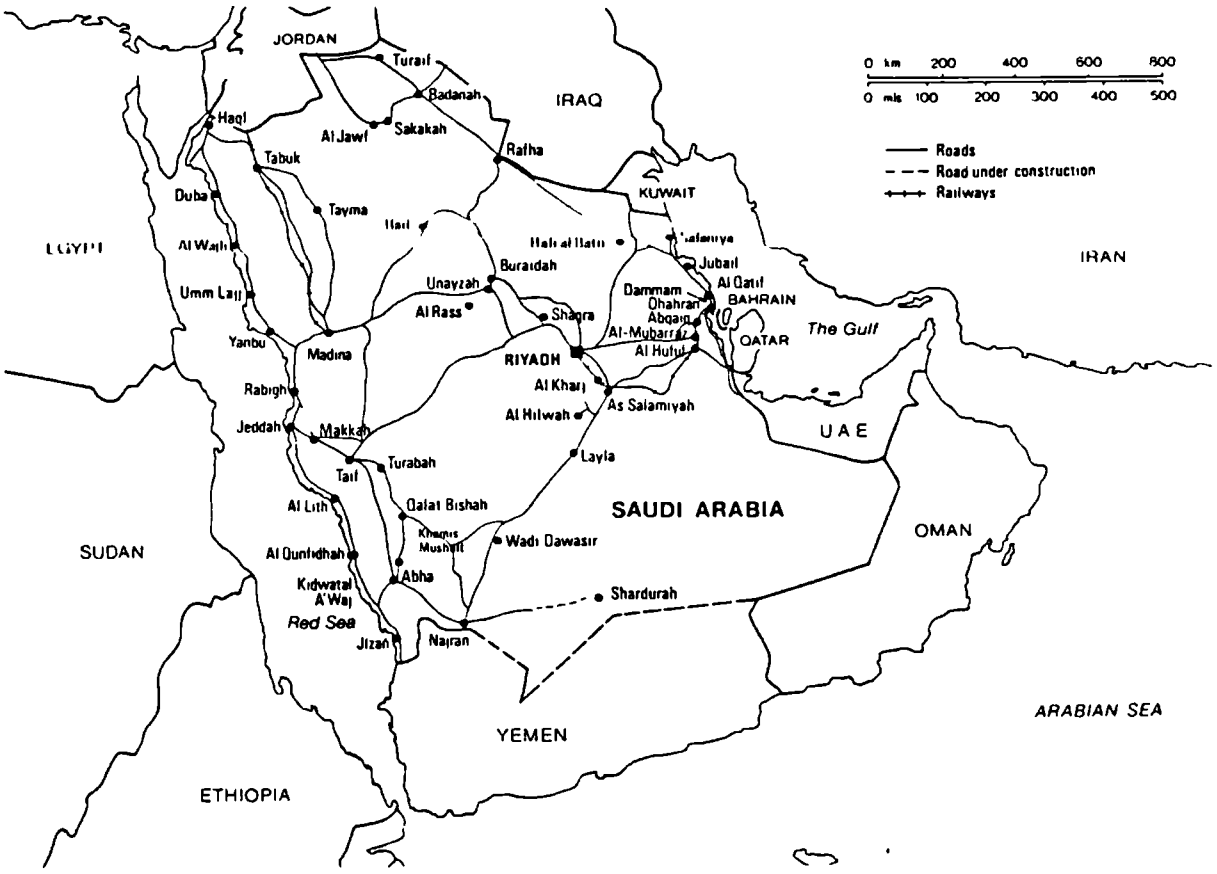

Figure 1-4: Map of Saudi Arabia.

1-6-2 Population:

The 1992 census puts the population of Saudi Arabia at approximately 17 million inhabitants; about 4 million of them are foreigners working in various jobs in the country. The estimated growth of the population is approximately 3.5%, which puts Saudi Arabia among the most rapidly growing nations in the world. More than half of Saudi Arabians are 20 years old and under.

Almost all Saudi Arabians are descended from the indigenous Arabian tribes, and today they still maintain many tribal affiliations. The Arabic language is the only mother tongue these inhabitants speak, and they are virtually all followers of the Islamic religion.

1-6-3 Natural Resources:

Oil is the most important natural resource of the Kingdom of Saudi Arabia. It was discovered in the late 1930s, and has been produced and exported on a commercial basis since the early 1940s. According to Farsy (1990), based on the latest estimate published by ARAMCO (Arabian American Oil Company) in 1989, the oil reserves found in the Kingdom stand at 252,380 millions barrels, that is approximately 25% of the world's proven oil reserves. At the present time, Saudi Arabia is exporting approximately 8 millions barrels per day, making it the largest oil producing country in the world, with roughly 15% of the world's exported oil.

Also, the same ARAMCO study puts the Saudi Arabian proven gas reserves at 177.3 trillion cubic feet, making the country one of the largest gas reserves in the world. Beside oil and gas, there are other natural resources such as gold, iron and silver. However, with regard to water, Saudi Arabia draws its water from four main sources. The Fourth Development Plan for the Kingdom, which

covers the period between 1985 to 1990, describes these four resources as follows:

> "- surface water, which is to be found predominantly in the west and south-west of the country. In 1985, surface water provided 10% of the Kingdom's supply.
> - ground water, held in aquifers, some of which are naturally replenished, while others are non-renewable. In 1985, ground water provided 84% of the Kingdom's supply, but it is noteworthy that most of this water came from non-renewable aquifers.
> - desalinated seawater, a source of water production in which the Kingdom is now a world leader. Desalination technology, which also produces electricity, has reached an advanced stage of technology in the Kingdom and, in 1985, this source provided 5% of the Kingdom's supply. (Saudi daily production of desalinated water is currently running at about 5.5 million gallons, a quantity unequalled anywhere else in the world.)
> - reclaimed wastewater, a source of water which is still in its early stages but which offers scope for considerable expansion. In 1985, the reclamation of wastewater provided 1% of the Kingdom's supply." [3]

1-6-4 Economy:

Before the discovery of oil, the economy was dependent upon pilgrims to Makkah and Madina, as well as exporting simple animal and agriculture products, such as sheep and dates. Today, Saudi Arabia still produces and exports dates, and is considered one of the world's leading producers, although the economy is now dependent on oil.

The Kingdom today is one of the top five non-OECD economies. Furthermore, according to O'Sullivan (1993), Saudi Arabia is the world's leading oil exporter, the Arab world's largest economy and the biggest consumer of foreign goods between western Europe and South-east Asia. He also states that:

> "Riyadh's voice is heard in the highest councils of world economic policy-makers, and Saudi Arabia is the only non-group of seven (G7) country with its own representative on the IMF's board of executive directors."[4]

During the last two decades, Saudi Arabia has witnessed an extraordinary rise in production and export figures. Oil and petroleum products account for

more than 90% of the Kingdom's export revenues. The petroleum sector accounts for roughly 75% of budget revenue. For example, the 1992 budget called for expenditure of SR 181,000 million (US$ 48,260 million). Furthermore, major industrial centres have been established recently in Jubil and Yanba (on the Arabian Gulf and the Red Sea respectively) for producing various petrochemical products that are exported around the world. This industry is believed to have a very strong future in the Saudi Arabian economy. The 1995 sales revenues of this industry accounted for approximately US$ 10,000 million, and it is expected to rise in the future due to increases in production.

1-6-5 Climate:

Generally, Saudi Arabia is divided into five geographical regions. The first is the central region, or Najed. This region is considered the heartland of Saudi Arabia, and characterised topographically by a vast eroded plateau. The capital, Riyadh, is located at the centre of this region. Since rainfall is low and not sufficient for irrigation (less than 100mm annually), the whole agriculture industry is dependent on deep ground water. The climate of the region is characterised generally by very hot and dry summers and cold winters. Summer day time temperatures average 42-45C°, while in winter the daytime temperature falls to 5C° or lower.

The second region is the western region, or Hijaz, which consists of the eastern coast of the Red Sea and the Sarawat mountains overlooking the coast. Hijaz contains the holiest cities in Islam, Makka and Madina, which are visited by well over 5 million people every year. The climate of the region is mostly hot and dry in summer, except on the coast where the humidity is very high. The summer temperature averages 35-45C°, while the winter temperature is slightly warmer than that of the central region.

The third region is the eastern region, or al-Hasa, overlooking the western coast of the Arabian Gulf and bordering the central region to the west. The Eastern region contains almost all the oil and gas fields in the Kingdom. It also contains the head quarters of ARAMCO, in Dammam, the largest city in the region, and the world's largest petroleum port, Ras Tanura. Its summer climate is humid and almost as hot as the central region, but in winter it is much warmer.

The fourth region is the northern region, which is the least populated one in the Kingdom, and is mostly occupied by al-Nofud desert. It contains mainly oasis settlements, some of them located above the largest deep water aquifer in the Kingdom (Tabuk-al-Juf-Hail Aquifer). Tabuk is the largest urban centre of this region, although it contains other cities or towns that are very ancient and famous in history, such as Tima and al-Bada' (or Median). The temperature of the region is generally much cooler than the former regions in summer, and is much colder in winter where temperatures can reach below freezing point on some winter nights. The rainfall is slightly higher than the previous three regions (up to 100mm annually).

The fifth region is Asir, situated in the far south-western corner of Saudi Arabia. It is the most populated region, due to its high mountains and high rainfall (up to 500mm annually), particularly in the summer. Being mostly a mountainous area, the region is characterised by cool summer temperatures of 20-27C° and mild winter temperatures of 7-15C°.

1-7 Cities covered by the Survey

The cities of Riyadh, Tabuk and Haqil were selected for the purpose of this study to represent large, medium and small urban settlements. There are also other reasons behind choosing these cities which are listed and discussed in detail in

Chapter 5. An introductory background to these cities' characteristics is given in the following part of this chapter.

1-7-1 Riyadh

Riyadh and the settlement around it constitute one of the three major areas of urban concentration in the Kingdom, the other two are the Western Province and Eastern Province. Riyadh, the capital of Saudi Arabia, is considered the centre of urban activity in the Kingdom, linking in a functional sense, the eastern and western metropolitan areas. This forms an axis crossing the country from east to west.

Riyadh's climate tends to be uniform, dry and very hot during the day time and cooler at night in summer, while in winter, nights tend to be cold, and days are warm. Daytime temperatures can reach 45C° or more in summer, and be as low as 5C° at night in winter. Rainfall is very low in Riyadh, the rainy season being from December to April, with an average of 100mm annually[5].

The earliest written historical references to Riyadh[6] are dated 715 BC. It was described by Arab travellers as a large spacious city and a centre of commerce for the Arabian Peninsula deserts, comprising many buildings, surrounded by a thick mud wall of 725 metres across. In 1823 AD, Riyadh was proclaimed the capital of the second Saudi state. It then became the centre of power and influence for the Arabian Peninsula[7].

William Palgrave reached Riyadh in 1863, where he provided us with the first graphic picture of the Saudi capital:

> "Before us stretched a wild open valley, and in its foreground, immediately below the pebbly slope on whose summit we stood, lay the capital, large and square, crowned by high towers and strong walls of defence, a mass of roofs and terraces, where overtopping all frowned the huge but irregular pile of Feysul's royal castle."[8]

By the 1960's Saudi Arabia had become a rapidly developing country with a strong economic power due to the rapid increase in oil production and exports. Riyadh witnessed enormous development because of this wealth, the city walls were demolished and networks of roads were established for the new-comer, the car.

This urban growth was paralleled by similar rapid population growth. Immigration from urban and rural areas in the Kingdom to Riyadh, caused by the pull factors of the larger urban areas, as well as employees brought from neighbouring countries to participate in the city development swelled the population of Riyadh. According to Daghistani (1985), the population of Riyadh between 1977 and 1983 more than doubled, from 690,000 to 1,500,000 inhabitants. Table 1-1 summarises the various estimates of population for Riyadh.

Table 1-1: Population Growth in Riyadh Over a 100 Year Period
(According to estimates beginning in 1862)

Year	Population	% Ann. Growth	Source
1862	7,500	--	W.J. Palgrave
1919	19,000	1.6	J.H. Philby
1950	83,000	6.4	City Planning Office
1960	160,000	8.6	City Planning Office
1970	350,000	---	Dr. Al-Sharif,
1977	690,000	9.7	Riyadh Master Plan
1983	1,500,000	---	Municipality Estimate
1989	2,000,000	---	Municipality Estimate

Source: Arab Urban Development Institute, ***Riyadh the City of the future***

According to the 1992 national census, Riyadh's population was 2.4 million, accounting for 14% of the Kingdom's total population. The figures released from the census indicate that foreigners make up 36% of Riyadh's residents. The urban area of Riyadh is 1,800 square kilometres (180,000

hectares), with an overall density of 133 persons per square kilometres (13 persons per hectare). The city has 3,500 kilometres of roads on which 415,000 cars travel an average 30 million kilometres daily[9].

Faisal Mubarak, in his valuable 1992 Ph.D. thesis: **Urbanisation, urban policy and city form; urban development in Saudi Arabia**, discusses the significant development and growth Riyadh witnessed in the last three decades. He indicates that the total number of jobs in the city rose from 180,000 in 1977 to 474,000 in 1987. Approximately 39% of the 1987 number of jobs were government employees, compared to 78% for the whole country. These numbers demonstrate the rapid increase of development which Riyadh went through during that period, and which is still on-going, and give an indication of the explanation for the enormous increase in the city's population. The high percentage of private sector employees in Riyadh, compared to the rest of the Kingdom, demonstrate the concentration of the private sector participation in the city's economy and development.

Al-Farsy (1990) describes Riyadh and its role today as the seat of the Saudi Arabian government and its ministries and official organisations, as well as a thriving commercial centre for the region and the whole country. "Riyadh is also a centre of Arab diplomacy. It is the venue for many international Arab meetings and is the site for the Diplomatic Quarter, an area built specifically to accommodate all embassies and their staff."[10]

1-7-2 Tabuk

Tabuk is the largest city in the whole northern region of Saudi Arabia, and therefore is considered the most important; it also lies on the Kingdom's gateway to the north. It is regarded as the agricultural and administrative centre for the region, as well as having one of the largest and most important military bases.

These characteristics have been significantly involved in the development and growth of Tabuk.

Tabuk's population in 1951 was around 5,000 inhabitants. In 1983 it rose to 173,000 and today it is estimated at slightly more than 300,000 inhabitants, which puts Tabuk among the most rapidly growing cities in the Kingdom (Al-Hemaidi 1996). These numbers illustrate the significant growth the city went through in the last four decades or so. The growth of population came mainly from the settling of the nomadic, or Badu, tribes surrounding the city. Also, the location of the military base in Tabuk has added to this growth by bringing Saudi Arabian citizens from around the country who were joining or were based in that base.

The climate of Tabuk is much cooler in summer than Riyadh, but it is also much colder in winter (temperatures sometimes reach -3 C° at night). This made Tabuk's region very suitable for various agricultural products that need a cooler climate, and are then distributed to other parts of the Kingdom. Most of the work force in Tabuk work in the Government agencies or the agricultural and business sectors. Other industrial, service and transporting sectors are important in the city's economy, although they play much lesser roles than the Government and agricultural sectors.

1-7-3 Haqil

Haqil is a coastal town located on the Aqaba Gulf, next to the Saudi-Jordanian borders, and it is the only Saudi Arabian town on the Aqaba Gulf. Being located in the northern most part of the country, and on the Aqaba Gulf gives the town pleasant weather all year round. The summer temperatures of Haqil are the coolest of any coastal town in the country (around 30-36 C° in the

daytime), besides which there is very little humidity, making the weather more pleasant.

The city population at the present time is estimated at around 20,000 inhabitants. Most of the town's inhabitants work for the Government agencies, as well as in the fishing and livestock sectors. The inhabitants are mainly descendants of the Badu tribes, who were and are still living in the region surrounding Haqil. However, most of them have now chosen to settle down and live the urban life, mainly in Tabuk and Haqil.

Due to the pleasant climate of Haqil, many tourists, mainly from Tabuk city, have been attracted to its beaches. This has led to considerable growth in the tourist service sectors. Although it is still on a small scale - a few small hotels and not more than 100 chalets on the seaside - this industry has a very promising future, particularly after the Municipality has released three sites for tourism investment projects.

Chapter 1 Notes

[1] . The prayer house of the five daily prayers for Muslims.

[2]. Lipsky, George, Saudi Arabia, Its People, Its Culture, New Haven, CT:HRAF Press, 1959. p. 13.

[3]. Fourth Development Plan 1985-1990. P. 27

[4] . O'Sullivan, Edmund, Saudi Arabia; A MEED Practical Guide, Middle East Economic Digest, London, 1993. p. 59.

[5] . Al-Bothie, Ibrahim, ***Urban Residential Open Spaces in Riyadh***, Master Thesis, King Saud University, Riyadh, 1986. p.35

[6] . The name "Riyadh" is the plural of the word "*Rowdah*" meaning garden or orchard.

[7] . Daghistani, Abdal-Majeed, ***Ar-Riyadh Urban Development and Planning,*** Ministry of Information, Riyadh, 1985. p.44

[8] . Palgrave, W.G., Personal Narrative of a Year's Journey Through Central and Eastern Arabia, 1862-1863,(London, McMillan, 1868), cited in Daghistani (1985), p.45

[9] . O'Sullivan, 1993. p. 171.

[10] . Farsy, Fouad, Modernity and Tradition; The Saudi Equation, Kegan Paul International, London, 1990. p. 8.

2-

PLANNING REGULATIONS

2-1 Introduction

This chapter will examine the concept and function of planning regulations. It will review the development of these regulations in Western countries, as well as in Saudi Arabia and two other Arab countries. The review will discuss and analyse the aims and objectives of these regulations, and assess whether these aims and objectives were met in the countries and areas where the regulations were adopted and implemented. Also, as Saudi Arabia is the case study of this research, a further and more detailed analysis is prepared in this chapter, particularly regarding the suitability of the adopted planning regulations to the socio-cultural values and background of the inhabitant.

2-2 Function and Aims of Planning Regulations

Land-use planning is the core of urban planning practice, and planning regulations are the dominant factor of land-use planning. Planning regulations are also referred to using other terms, depending on the country and the council responsible for the planning of that city or district, such as "Development Control Plans", "Planning Codes" or "Development Control Regulations", in the UK, Australia, and New Zealand, or "Zoning Codes, "Zoning Ordinances" or simply "Zoning", in the USA.

All these terms refer, more or less, to the same general concept and aims of planning regulations. The term "Planning Regulations" is the most widely used in the Saudi Arabian planning practice, although the term "Zoning" is also increasingly used. As Saudi Arabia is the case study in this research, the term "Planning Regulations" will be used.

Since land-use planning is the subject matter of planning regulations, it ought to be defined and understood first, in order to conceptualise the function and aims of planning regulations. Without defining its subject matter, the concept and function of planning regulations would be inadequate and inaccurate. Therefore, land-use planning is discussed briefly in the next section, followed by a more specific and detailed discussion of planning regulations.

2-2-1 The Function of Land-Use Planning

The land-use plan is an instrument which is meant to determine the future land-use pattern of a community. According to Cantenese and Snyder (1979), land-use planning is the core of urban planning practice. The land-use plan identifies the areas that are devoted to various types of activities, their densities and intensity of their use; categories include residential, commercial, industrial and various public uses. The writers compared a land-use plan of a community, to a floor plan of a building- i.e. to determine the kinds of activities that are to be located within a city.

The land-use plan sets policies which are meant to encourage the upgrading and preservation of the existing city, as well as providing an orderly, efficient, and logical extension of urban development in the mainly underdeveloped area surrounding the city. As Eisner and Gallion (1983) stated, the land-use plan, through its effects on public and private decisions and investments, can have a powerful influence on the growth rate, character, quality, and pattern of the city's physical environment.

According to some later studies by various writers, the land-use plan aims to chart the relationship between the city and the region, and to indicate its integration with its satellite communities, and to define the areas and standards for subdivision of new land. The land-use plan forms the basis for the precise details

of planning regulations (or development controls, as Eisner and Gallion called it), such as parks and recreation areas, schools, and other public places and buildings.

Roberts (1988) describes the context and structure of a land-use plan, stating that "a land-use plan consists of a text and a map, or series of maps. The text includes policies, and the maps illustrate the spatial application of these policies, either in a general fashion or in detail, specifying certain types of use for specific areas."[1] He also indicated that the land-use plan is generally a component of a comprehensive plan, and that other components deal with transportation, utilities, various community facilities, and special concerns, such as economic development and environmental protection.

Although Adams (1994) mainly agreed with Roberts' description of the land-use plan, he emphasised that the land-use plan should also contain a reasonable justification of the policies and proposals in the plan. In his view, a land-use plan normally looks 10 years ahead, although other researchers (such as Roberts, Eisner and Gallion, Cantenese and Snyder) did not indicate the length of period a plan was intended to cover, which could be because they preferred to leave the time validity of the land-use plan open for variations between councils, as well as between regions and countries.

2-2-2 Function of Planning Regulations:

A land-use plan requires several tools to implement it. As Cantonese and Snyder (1979) and Leary (1968) explained planning regulations (or development controls, or zoning codes), subdivision regulations and other development regulations are examples of the main components of a land-use plan. The broad aim of these regulations is to ensure that private development complies with certain standards and is located in areas that are consistent with that land-use plan.

Although both planning and subdivision regulations are used as methods of development controls, they differ from each other. While the planning regulations assign individual lots, the subdivision regulations manage the process by which housing lots are made out of larger tracts of land. Goodman and Freund (1968) confirmed that subdivision regulations are used to ensure the utilities, width of street, length of blocks, size of lots, etc. as per the specified norms. These regulations are also used to ensure that subdivision provides a variety of public facilities to serve the development, such as street side-walks, storm and sanitary facilities, sewers and street lights. Therefore, although both planning and subdivision regulations control the nature of development, this research will concentrate solely on planning regulations that operate on an individual housing lot basis.

In order to carry out the land-use plan and implement its policies, the planning regulations plan or ordinance has to be formed according to the objectives and contents of the land-use plan. Generally speaking, the job of setting the planning regulations ordinance is usually left to the local planning authority. This aim is to speed up the process of issuing these ordinances, and to ensure the maximum possible use of public and private organisations and citizen participation.

Like Roberts (1988), Cantonese and Snyder (1979) also stated that the planning regulations plan consists of a map and text. The map specifies the area and permitted uses in it. The text contains the regulations concerning height and shape of structure, the maximum density of development, and minimum setback requirements. Furthermore, it also sometimes regulates the sign boards, off-street parking, landscaping and building appearances.

Planning regulations, as Rydin (1993) indicated, are the cutting edge of the land-use planning system. They are the mechanism by which planning affects

most people and has arguably its most direct effects. The essence of development control is that prior permission is required for most categories of development.

Moreover, planning regulations are not only a means of ensuring that the land-use plans are properly situated in relation to one another, but also a means of protecting public health, safety, morals and the general welfare of the citizen, as Goodman and Freund (1968), and Leary (1968) pointed out. Planning regulations are used, as well, to ensure adequate light, air and privacy, to provide safe playing areas for children and recreation space for the elderly, and in general to maintain a healthy and safe environment.

The **Residential Development Controls 1** published by the Department of Planning in Sydney, Australia, in 1990, especially illustrated these aims. This study stated that the aims and objectives of planning regulations ordinances (or the Development Controls, as it is known in Australia) are:

> "to enhance and protect the amenity of new and existing residential areas by:
> - providing design controls for residential development.
> - setting reasonable environmental standards for solar access, privacy, noise, views, vehicular access, parking and landscaping."[2]

This example illustrates the earlier views of Goodman and Freund, and Leary on the broader aims of planning regulations, regarding the welfare of the society, as well as the implementation of the land-use plan.

However, Babcock (1966) asked why planning regulations were needed. Babcock proposed two theories to explain their purpose: "the property value theory" and "the planning theory":

The "property value" theory:

This theory's fundamental principle is that each piece of property should be used in a form that will guarantee that the sum of all the pieces of a property will have the greatest value, as determined by market forces. In other words, every

piece of property should be used in a form that will give it the highest value without causing a corresponding decrease in the value of another property.

The "planning" theory:

Babcock starts his description by stating that planning regulations are merely a tool of planning, where a standard planning dogma requires that a planner is called to prepare a municipal planning regulation ordinance (or zoning ordinance). This planner will generally go through the following ritual: firstly, a very junior planner makes a survey of the municipality, and secondly, prepares a map displaying the land's uses. According to this and other such data, as well as consultations with community heads, a very senior planner prepares a "comprehensive plan" for the community. This shows the community's idea of what it wishes its future to be. The planner then sets forth a number of mechanisms for "implementing" the plan, including, typically, a capital improvements programme, a subdivision control law, and a planning regulation ordinance. In the planner's view the planning regulation ordinance is merely one of a number of methods of achieving an overall municipal plan.

Then, Babcock concluded his remarks and claimed that planning regulations have been a huge success in most of the suburbs where they have been implemented, providing the planning theory means doing with the land what the municipality alone wants done. If planning is designed to provide that environment which a majority of the voters within the boundaries of a specified municipality believe they want, then planning regulations have also been highly successful. When planning is intended to accomplish not only physical amenities, but also to achieve some concealed social and political objectives, planning regulations have been notably more effective than their originators had dared to expect.

However, in the end, Babcock favoured the "planning" theory over the "property value theory" mainly because in many cases the logic of planning

regulations was determined with respect to factors far more complex than a simple balancing of values of neighbouring property, whether or not monetary values were measured. This view is also supported by Leary (1968), where he emphasised the role and power of the planning regulations in implementing the larger scale plan and goal of the community, which, according to the property value theory, far exceeded the objectives and purpose of the planning regulations. But in a later statement, Babcock concluded that there can never be any single foreordained expectation for planning regulations. Both the planning theory and the property value theory set forth valid goals for some people in certain situations.

Leary also stressed the importance and effects of variation in place, time and people in determining the purpose and mechanism of planning regulations ordinances or plans. In his view, the characteristic feature of the planning regulations plan that differentiates it from most other regulations is that it varies from one district to another, with no uniformity throughout the city.

Lastly, both Babcock and Leary concluded that planning regulations need no purpose of their own. Planning regulations are "no longer a movement like Single Tax or Prohibition: zoning is a process."[3] At the same time, Babcock stressed that while we should not insist that planning regulations have "purposes", we can insist that the planning regulation process be performed in accordance with certain principles, that the "means" if not the "ends" of planning regulations be governed by neutral principles.

In line with these last comments, planning regulations will be investigated in another context, in the sections that follow. These planning regulations will be discussed and analysed in the countries where they first appeared in their modern form, namely the UK and the USA. Comparing the UK and USA to Saudi Arabia and other countries in the Arab world, will give a broader concept of how, why and for what purposes planning regulations were established and implemented.

However, as there are numerous categories or components of planning regulations, this study will only include the main categories that are involved in and influence the relationship between a house form and overlooking. These categories or components will be defined and analysed according to their environmental context in a region or country since each different environmental factor will address these categories. These categories consist of the following:

1- Floor Space Ratio
2- Site Coverage Limits
3- Yards and Setback Requirements
4- Building Height Limits and Number of Storeys
5- Parapet Height Requirements
6- Other Planning Regulations Regarding Privacy

2- 3 Planning Regulations in Western Countries

2-3-1 Planning Regulation Practice in America

Early American building and land-use controls grew from disasters. Gunpowder mills were required to be located on the outskirts of town after the explosion in Delft, Holland, in 1654, to the occasional inconvenience of owners and workers (Bair, 1984). The roots of the very early land use and zoning controls date back to the year 1867, when the first New York tenement legislation was enacted, a year after the city health department had been established. According to the Report of the National Commission on Urban Problems (1974), the 1867 Law slightly restricted the tenement's lot coverage, and further legislation in 1879 and 1901 reduced coverage to 65 percent. In a matter of a few years, other cities such as New Jersey, Pennsylvania and Connecticut passed comparable laws, and between 1905 and 1908, Chicago, Boston, and Cleveland adopted similar ordinances.

The Report also indicated that other cities were restricting building heights and land use in the interests of public health and safety. San Francisco and Los Angeles passed ordinances in the 1880s limiting the location of laundries. In 1889 height restrictions were placed on buildings in Washington, DC, while in Boston, height regulations were enacted in 1903 and upheld by the US Supreme Court in 1909 as a valid exercise of police power.

The very early examples of zoning ordinances grew up against the background of these developments, and the efforts of property owners to prevent unwanted change in their neighbourhoods. Most writers agree on two points; the first is that early zoning ordinances were chiefly designed to protect the 'highest class' of residential properties, namely single-family residences on extensive lots with large yards; and the second is that the beginning of contemporary zoning was the adoption, in 1916, by the city of New York of a zoning ordinance which regulated the use and location of building throughout the city (Babcock 1966, Leary 1968, Eisner 1983, Bair 1984, Adams 1994)

Babcock (1966), for example, claimed that zoning was no more than a rational and comprehensive extension of public nuisance law, with the great advantage of providing all landowners with knowledge before the fact of what they could and could not do with their land. He explains that the typical ordinance of the 1920s divided the municipality into three zones: single family, commercial and industrial. If the community was sufficiently urbanised, an apartment district might be included. [4]

According to Babcock, as this early example of zoning ordinance was drawn to such an elementary scale, it was no surprise that this intelligent device spread all over the country in the twenties. It appeared that one locality could cut and paste its local code into another municipality's zoning ordinance. According to the report of the National Commission on Urban Problems (1974), by 1925, 368 municipalities had passed ordinances; and five years later more than 1000

municipalities had done so. State enabling legislation, giving municipalities certain authority in a zone, became common during the 1920s. Moreover, this State practice was substantially aided by the Federal Government, and by the early 1930s some or all localities in every State were legally empowered to adopt zoning ordinances. These early days were well described by Dukeminier (1962), where he stated:

> "What often happened when zoning first swept the country was this: The city fathers called in an outside expert who made a swift survey of the city and then prepared a zoning map. If any master plan or surveys of physical, economic, and sociological conditions in the city were prepared, as likely as not they were filed away in a bottom drawer. The zoning map 'stabilised property values' and that was what the city fathers were interested in."[5]

Bair (1962) asserted that little had been learned from the 1920s up to the 1950s. He criticised the process in which zoning had been widely implemented around the country without enough examination and development of it. He also stated that "before this new device could be tested through experience, it was widely 'sold' around the country, much in the manner of the present-day urban renewal. Progress on the municipal scene was measured in terms of how many additional cities had zoning each year, rather than by what was actually happening to cities"6

On the other hand, 21 years later, Eisner (1983) credited the role of zoning in the urban development and control. He indicated that zoning had a profound effect upon American cities. For the first time an instrument was created with which the use of land in urban areas was controlled. It was characteristic of this technique to protect the general welfare of each citizen individually.

2-3-2 Planning Regulation Practice in Britain

The early planning system and regulations in the UK developed from public health and housing policies in the 19th Century. The rapid growth of cities and towns, and the increase in population resulted in health problems among the

urban population, which demanded a new role for government. Some government measures were taken to improve public health, among these were powers for local authorities to control street widths, and the height, structure and layout of buildings.

For example, the London's Building Act was introduced in London in 1844 to control new development in order to improve public health in housing. The first appearance of the concept of having an open space around residential dwellings was presented by this Act. It required the provision of a minimum amount of 100 sq. ft. for open spaces in residential dwellings, although no dimensional standards were made to the width of that space.

As these measures proved to be of limited effects, Cullingworth and Nadin (1994) indicated that with the beginning of the 20th Century, a more effective mechanism and policies were increasingly needed, particularly with the emergence of the Garden City Movement by Ebenezer Howard which had a considerable influence on contemporary planning thought in Britain, as well as elsewhere in Europe and many other parts of the world. This was achieved through the introduction of the Town Planning Act in 1909, which used for the first time the term "town planning" for the first time.

The 1909 Act provided new powers for local authorities to prepare planning "schemes" for controlling the development of new housing areas. This Act proved to be a significant step in contemporary urban planning in the UK, and formed the basis of all the planning laws, regulations and thinking that followed. However, after the First World War, this Act was revised and replaced by the 1919 Act, which emphasised local planning and gave local authorities more power to initiate more precise planning policies and schemes. But Cresswell (1984) claimed that this legislation proved to be ineffective as it only concerned limited areas of newly developed land.

It was not until the 1932 Town and Country Planning Act was passed that power was given to local authorities to make planning schemes for any land in an area, whether it be land in a built-up area or land not yet developed. According to Cullingworth and Nadin (1994), in 1942, 73% of the land in England had become subject of in term development control, with a large number of planning authorities, which reached to 1400 authorities in 1944. However, the number of schemes prepared under the 1932 Act was limited and it was not until the Town and Country Planning Act 1947 that a planning system was introduced which gave comprehensive power over planning for the use of all land

According to Cresswell, this tended to suggest that planning in the 1930s was "seen as a more comprehensive activity, rather than just an off-shoot of public health and housing, intended to prevent the construction of sub-standard housing and uncontrolled sprawl of residential areas."[7] The Town and Country Planning Act of 1947 was a major step forward in the development of the physical planning system and introduced a more positive system of making plans controlling development. The 1947 Act required the production of development plans covering the entire area of each county or county boroughs indicating the proposed land use, together with a written statement on the proposals, and a report of the survey.

2-3-3 Present Western Planning Regulations

Things have changed considerably since the early examples of land-use planning and zoning ordinances. Today's ordinances, in the USA, which regulate everything from off-street parking to the number of bedrooms, bear little resemblance to the first cautiously drawn bulk and height limitations. Bair (1984) explained that governments now perform more functions and employ more specialists. Planning commissions are now common, and many jurisdictions now have professional planning staff and/or consultant assistants.

From the quantitative perspective, Roberts (1988) suggested that over succeeding decades, there has been an explosion in the quantity of zoning categories in most cities (typically, a large city will have a minimum of 20 and may have as many as 50 categories), and the number of attributes specified in regulations will grow to the level that specialists are required to extricate their meaning and intent. However, the mainstream concept of zoning continued to be "controls over land uses (which usually underpin the distinctions between zones) and controls over building form and mass provides the grit of what is required in any particular zone."8

As a result of this complexity in aims and functions of planning regulation or zoning nowadays, many variations have been added to the original concept of homogenous zoning districts with uniform standards. According to Roberts (1988), these partial listings of zoning ordinance and development control types indicated their diversity and complexity: transferable development rights, conditional zoning, performance zoning, planned unit development, bonus zoning, floating zoning, sinking zoning, overlay zones, down zoning, impact fees, and many others.[9]

However, zoning ordinances and regulations have been under strong attack from some scholars, such as Seidel (1978) and Siegan (1974). Seidel, for example, blamed zoning ordinances for being a major obstacle to equitable housing policy in the United States. He indicated that not only is zoning an improper instrument for achieving its ostensible purpose, but it also leads to wasteful land use patterns, unimaginative site design, and an ever-increasing degree of racial and economic segregation. He pointed out that these regulations, which included minimum lot size, minimum lot width, minimum house size, maximum structure coverage, architectural standards, restrictions on permissible housing types, and a variety of other standards regulating the lot and structure, had severely damaged attempts to encourage low-and moderate-cost housing in suburbs.

Furthermore, Chicago builder and lawyer, Bernie Siegan (1974), set out to convince the USA that the abolition of zoning would be the greatest thing since the Town Send Plan. He claimed that the free market might create a more desirable land use pattern than artificial zoning restrictions and would surely reduce the cost of housing. As an illustration he cited the city of Houston, Texas, where land use control had for generations been dependant primarily upon private restrictive covenants placed in deeds by the developers. Most residential land in the city was subjected to private restrictions over use, size, or cost of house, yard requirements, height of building, and all the other baggage customarily found in Illinois zoning ordinances.

As mentioned before, the land-use or zoning text of the ordinance sets a plan of planning regulations to implement the policies of these ordinances as well as to control the new development in the area. The aims of these five categories of planning regulations, which were selected earlier and were investigated in this research, vary considerably according to the zoning policy of a municipality or locality. Nevertheless, the following review of these categories outlines the general aims of these categories in Western countries. The main source of information for this review is drawn from literature on this subject, and supported by information drawn from examples of planning regulations plans of municipalities in Western countries.

2-3-3-1 Floor Space Ratio

In residential areas, the density of development and people are usually expressed in the form of dwelling units per hectare, or, where more precision is sought, in the form of bedrooms per hectare. However, one of the most commonly used measures for such controls of density is the "floor space ratio". This exceedingly popular control device, as Leary (1968) stated, specified the relationship between: (1) the area of permitted floor space in a structure, and (2)

the area of the lot on which it is situated. The designer may then choose a variety of building forms in which this relationship is preserved. For instance, a floor space ratio of 2.0 permits the builder to erect a two-storey building covering the entire lot, a four-storey building covering one-half of the lot, an eight-storey building covering one-fourth of the lot, and so on.

While Leary (1968) indicated that the floor space ratios for different classes of districts might be 0.7 for residential areas, other zoning ordinances use three categories for single family dwelling zones. These are: low, medium and high density standards of ratio limits of 0.45, 0.7 and somewhere between 0.75 and 1.0 for the higher density. However, Leary explained that any such regulations should, of course, reflect an analysis of existing structures to determine what is reasonable in any given district.[10]

2-3-3-2 Site Coverage Limits

The site coverage limit is a controlling device used along with other devices in the planning regulation plan in order to: 1) achieve a certain balance between built up and open areas within the residential lot, in order to ensure the supplying of adequate indoor and outdoor spaces for people, animals, plants and vehicles (Eisner, 1983); 2) to secure the provision of a certain minimum amount of open space within the lot area (Department of Planning, 1990); 3) to control the bulk of the building (Leary, 1968); 4) to avoid overdevelopment (Sutherland Shire Council, 1985).

Similar to the aim of the Floor Space Ratio, the third objective is strongly related to the population density of the residential district. It aims to ensure that the population does not exceed a certain number or level in order to guarantee the availability of a sufficient amount and quality of utilities (i.e. telephone lines, electricity supply, water, etc.) and services (i.e. schools, libraries, health services,

social community services, etc.) to support this population adequately and equally.[11]

2-3-3-3 Yards and Setback Requirements

One of the crucial problems in zoning policy and regulations is the relationship between buildings and the space around them. Eisner (1983) indicated that "the issue of space about buildings was once predicated upon the necessity to preserve adequate light and air for interior space"[12]. Eisner explained that setback requirements for residential dwellings were used to achieve this purpose.

Also, the significant progress in the technical design of the interior environment within the dwelling decreased the demand for such provisions. According to Eisner, "preservation of space for light, air, sound control, and privacy continue to be a criteria in measuring adequate space between buildings, but their relative importance has been modified by advances in artificial illumination, sound insulation, and air conditioning"[13].

Though, Babcock (1966) supported Eisner's opinion of the purpose of setback requirements, he added that these requirements were developed in modern times to ease overcrowding as well as to avoid fire hazards. He regarded the first appearance of the idea of having an open space in residential dwellings demanded by law, as London's Building Act, 1844. The modern form of setback requirements were also introduced for the first time in the UK, in London with the Building Act of 1894. This Act provided that working class dwellings ought to be setback from the street line in order to make the width of the street equal to the measurement of the dwelling's height.

Eisner (1983) also highlighted another purpose for setback requirements, which he described as a mounting challenge, to provide the residential dwellings

with exterior space "in which the environment may be enriched with landscaping, and in which the human scale may be restored"[14]. However, this thesis will concentrate mainly on the newly developed areas, or on the renewal areas where land is divided into large plots. For old areas, the current concern for space to protect light, air, etc., will still be an important consideration.[15]

Another example of the practical aims of setback requirements is stated in planning regulations guidelines prepared in 1990 by the Department of Planning in New South Wales, Australia, for the single family, low density residential dwellings zones[16]. This scheme formulates two objectives for the setback requirements. The first is to permit flexibility in the setting of buildings. The second is to minimise the adverse impact on adjacent and adjoining properties. The scheme supplies several drawings to illustrate its policy and regulations in graphics, see Figure 2-1.

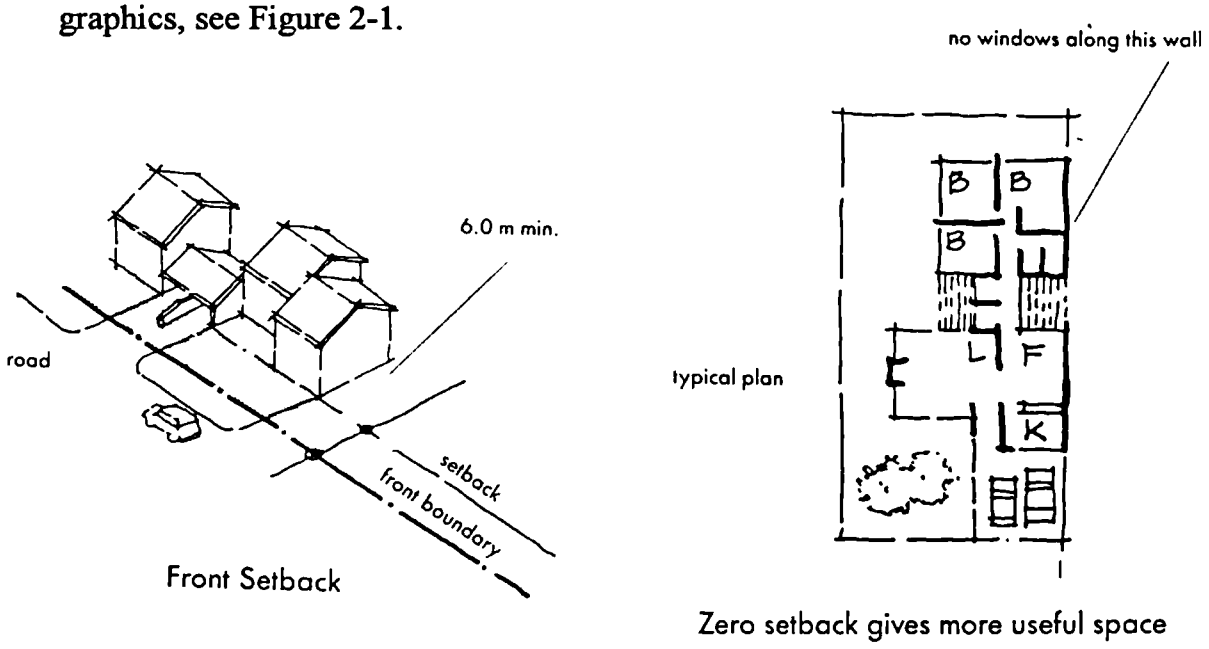

Figure 2-1: Examples of setback requirements and building to boundary setbacks (after Department of Planning, NSW, 1990)

Another planning regulations ordinance, prepared by a seashore Sydney suburban council for single family dwellings (Sutherland Shire Council, 1985), stated its aims for front setback requirements: 1) dwellings to have regard to the likely appearance from adjoining allotments; 2) to minimise the impact of the

dwelling on the streetscape; 3) to maintain an open street scene with substantial areas for planting, outdoor use and setback from the roadway. The plan required a minimum setback of 7.5 metres from the front lot line, while for the setback of side boundaries, the plan required a minimum of 1.5 metres from the side lot line. The aims of the side setback are: 1) to achieve separation between dwellings for privacy and to enable areas for landscape; 2) to enable views to the water between dwellings where available.

Generally, setback requirements are sub-grouped into front, rear, and side yard requirements. One of the most accurate and sufficiently detailed studies about these setback requirements and their sub-groups was produced by Leary (1968). He explained that most planning regulations required front and rear yards in residential districts only, or for residences situated in other districts such as commercial or industrial districts. Some planning regulations gave the property owner the choice of using his yard for off-street parking requirements. Although this case was not very common, many planners and architects considered this an unfavourable practice because a parking space did not have the same characteristics and functions as a yard. Leary explained that front yard requirements are usually expressed in four forms:

1) as a minimum number of feet between the front lot line and the front of the building;
2) as a percentage of the lot depth;
3) as a relationship to the front yards of other buildings which have already been constructed in the immediate neighbourhood; and
4) as a minimum number of feet between the front of the building and the centre line of the street.

However, the front yard depths vary greatly among planning regulations plans. According to Leary, the rule which is usually followed for determining the appropriate requirements for this category comes from the formula that the total

distance between residential dwellings facing each other, including the street and paths between them, should be two or three times the maximum height limit of these dwellings that is required by the ordinance. The common front yard requirements in single family districts range from 25 to 40 feet. In older districts, they are usually somewhat less, but requirements for newer districts may be more, in order to provide adequate play space for children.

The side yard requirements, Leary argued, ought to be based in part on fire insurance requirements, being expanded in districts where fire protection is inadequate. In most Western cities, at least five to eight feet is required on either side of the dwelling. Some requirements differ according to the height or length of the dwelling.[17]

The rear yard requirements could be represented either in feet or as a percentage of lot depth. Usually, the least acceptable depth for rear yard requirement ranges from 15 to 40 feet in accordance with the lot depth. Zoning ordinances and planning regulations commonly permit the erection of accessory buildings (such as garages and woodsheds) in rear yards, provided: (1) that their area does not exceed a stated percentage of the required yard; (2) that an equivalent open space is provided elsewhere on the lot; and (3) that they are placed in stated distances from all lot lines.

Moreover, some planning regulations ordinances specify certain regulations for dwellings containing courts. Leary explained these regulations for both outer courts (open from at least one side) and inner courts (completely surrounded by the building). Many planning regulations indicated the minimum size of such courts. The requirements of these regulations varied greatly and depended wholly on the number of storeys from the bottom of the court, and on the distance from the closed end to the open end of an open court. Leary, then suggested a generally common minimum width of 4 to 12 feet for the outer courts and 4 to 20 feet for the inner courts.

2-3-3-4 Building Height Limits and Number of Storeys

The regulations for building height limits were one of the first planning regulations to be used in Western countries. As discussed in the earlier section, height restrictions were introduced in urban centres in the late 19th century in the USA and UK. Bair (1984) explained that big city housing congestion and squalor led to the enactment of tenement laws around 1900, the predecessors to modern housing codes. One of the regulations adopted by these laws was building height limits. These regulations aimed to facilitate fire protection, keep streets from becoming dark canyons, and reduce death tolls from fire. There were also height limits in central London to protect Queen Victoria's view from Buckingham Palace.

Leary (1968) indicated that the typical height limitations for single family dwellings is 35 feet or two and a half storeys. Nevertheless, the height requirements in most common planning regulations ordinances are usually expressed in one or more of the following forms: 1) in a maximum number of feet from the natural ground level to the upper point of the dwelling's roof; 2) in a maximum number of storeys; 3) with reference to the width of the street onto which the dwelling fronts, e.g. allowing the dwelling a height of 'X' times the width of that street.[18]

The planning regulations ordinance of the Sydney suburban council (Sutherland Shire Council, 1985) required a maximum height of 7.2 metres and a two storey limit. The aims for these requirements as stated in the plan are: 1) to minimise the visual impact of dwellings with regard to the likely appearance of the dwelling when viewed from the water; 2) to maintain a scale in proportion to the site and adjoining development. These aims indicated the emphasis of this plan on the aesthetic quality of the neighbourhood, and showed the influence of both the geographical location and the main interest of council policy on the plan.

2-3-3-5 Parapet Height Requirements

Due to the fact that by far the most common style of single family dwellings in Western countries is the pitched roof style, it is very rare to find any specific requirements for parapet dimensions or height in planning regulation ordinances. The very few examples that are found regarding this device are only applicable to the multi-storey office and residential buildings. These examples of regulations are mainly concerned with the continuity of roof lines, as well as any possible significant decoration in the top part of the building facade. Thus the main aim of the use of this device is for aesthetic reasons.

2-3-3-6 Other Planning Regulations Regarding Privacy

Some planning regulations ordinances address the privacy issue directly (rather than the common indirect method, through other controlling devices, such as setback and height requirements. An example of these plans is the Development Control Plan No 1 for Residential Development (1988) of Leichhardt Municipal Council in Sydney, Australia. This plan required new buildings to be designed so as to minimise overlooking neighbours' windows and gardens and to provide a reasonable level of visual and aural privacy. The plan presents some physical solutions to achieve privacy between facing windows. It also states that:

> "where direct overlooking occurs from window to window or window to private gardens and screening is not feasible there should be a minimum separation of 20 meters or alternatively windows should have a minimum sill height of 1600mm above floor level."[19]

The solutions presented in the plan comprised controls on setting, planning and screening, as well as a strong emphasis on landscaping methods. Some of these solutions are presented in Figure 2-2.

On the other hand, the Leichhardt Council's planning regulations ordinance presented an example of plans directly addressing the privacy issue and emphasising it, perhaps for the reason that the average lot size or area is relatively small. On the other hand, the planning regulations ordinance of Sutherland Shire Council (1985) did not mention the term "privacy" or its implications at all, even though both plans were for different suburbs of the same city. The reason for this difference is strongly linked to the different urban planning and social policies and characteristics between these two localities.

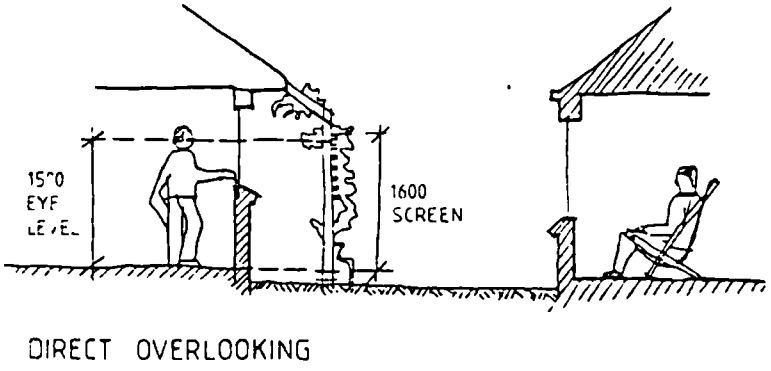

Figure 2-2: Controlling direct overlooking between adjacent dwellings through screening (after Leichhardt Municipal Council, 1988).

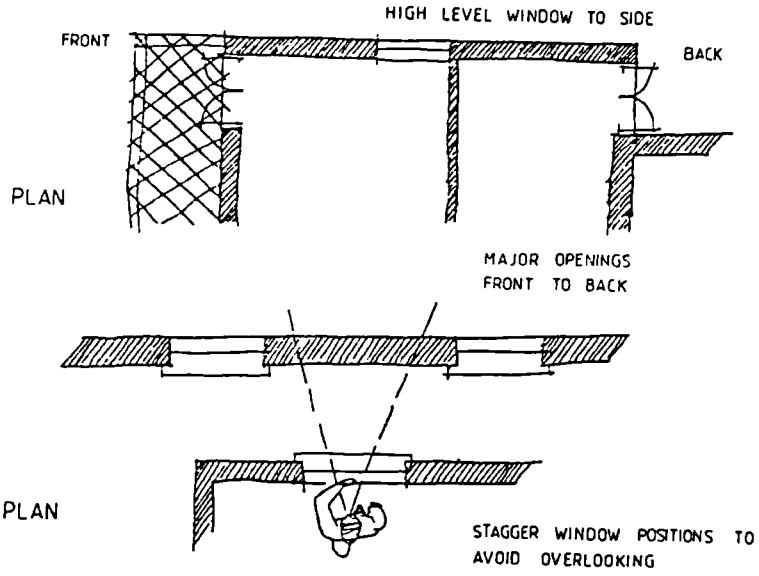

Figure 2-3: Controlling direct overlooking between windows by rearranging window locations (after Leichhardt Municipal Council, 1988).

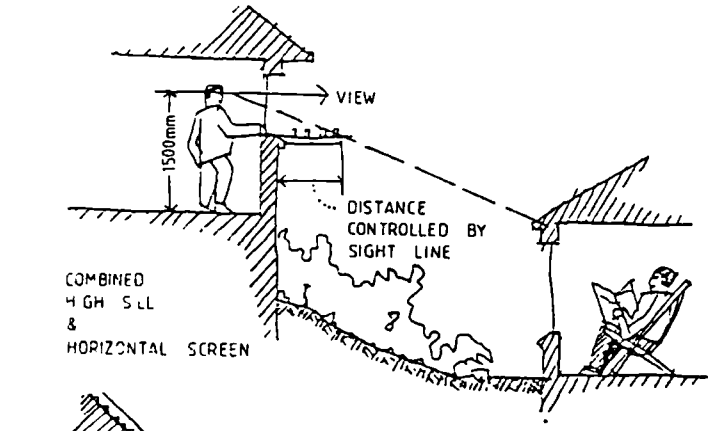

Figure 2-4: Controlling oblique overlooking by using fixed horizontal and vertical louver screens and planter boxes (after Leichhardt Municipal Council, 1988).

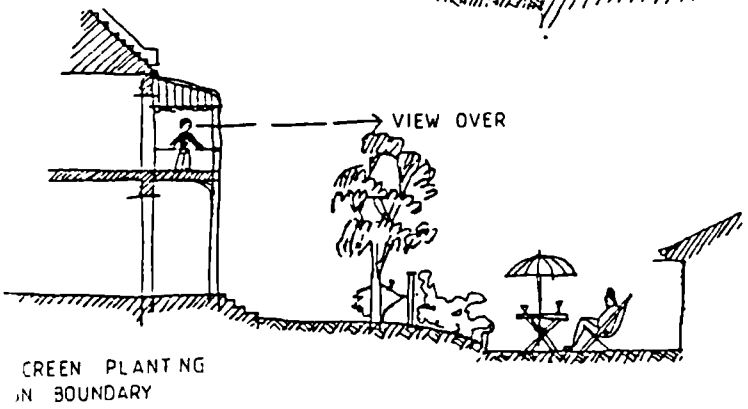

Figure 2-5: Using landscaping through trees and shrubs to screen overlooking between dwellings (after Leichhardt Municipal Council, 1988).

2- 4 Islam and Planning Principles and Guidelines

2- 4-1 Islam and Urban Life

The Islamic religion emerged in the Arabian peninsula 14 centuries ago, through the mission of the Prophet Mohammed (peace and blessing be upon him) in Makkah. Abdulaal (1987) and Adam (1990) both explained the meaning of Islam and its philosophy. They clarified that the word "Islam" mainly came from *Silm* or peace, submission and obedience. The religion of Islam is the complete acceptance of the teachings and guidance of God as revealed to His prophet Mohammed (peace be upon him). A Muslim is one who believes in God and strives for the total dedication of his life to the revealed guidance and sayings of the Prophet. He also works for the building of a human society *Ummah* on the same basis.

Islam, and its moral and legal system, has an enormous effect on the physical environment wherever Muslims have established an urban life. The early

Muslim spread out to conquer many regions of the world with a very simple device: the Quran. Philosophy, ethics, politics, legislation in fact all the essentials of Islamic civilisation are comprised in that Holy Book (Benevolo, 1980).

An urban lifestyle and the settling down of nomadic Muslims were essential in order to fulfil these two principles, which led to the establishment of the Islamic community and achieving the ideal way of life that Islam conceptualised for its followers. As Grunebaum (1955) indicated, "to the Muslim, a town was a settlement in which his religious duties and his social ideals could be completely fulfilled. .... Islam needed the city as a base, and it needed it as the only locale in which the correct life as prescribed by the book of God and the Prophet's Tradition could be lived out to full".[20] Actually, this fact is one of the various attributes that specify Islam as a religion of townspeople, as Grunebaum put it, "at least in the sense that it tends to favour the settler over the nomad".[21]

Nevertheless, the nomads or *Badow* (the Arabic noun for nomads) remain the major factor that determines the expansion and development of urbanised societies in Muslim cities. Such a dichotomy between ruralisation and urbanism seems to be very much related to Muslim civilisation. This observation is substantiated by ibn Khaldun's theories with regard to civilisation and the formation of cities. For the 14th century Muslim historian (possibly the first sociologist in history, as many scholars claim), the apparent turmoil of events in the early state of human existence can be explained by one phenomenon: the continuous presence of two ways of life, nomadic and sedentary. One is that of the rural inhabitant, the man of the desert, while the other represents that of the urban resident. Both types are irreconcilable by nature and thus exist in perpetual struggle. According to ibn Khaldun:

> "the genesis of human society takes place in the countryside, as in nomadic existence. There man finds a minimum of communal co-operation and a maximum of individual struggle. Civilisation concludes its continuous process of change by founding cities. Mankind tends forcibly towards such end. On the other hand, the reverse does not take place. The city dwellers do not return to rural life, to the freedom of the countryside."[22]

In the light of these basic principles and the guidelines of Islamic law, *Sharia'h*, the building process and its framework were conceived. Hakim (1986) claimed that "it can safely be asserted that the development of these basic principles and guidelines started in 1 AH or 622 AD when the Prophet Mohammed settled in Madina".[23] It was also counted as the early start of Muslim's city planning and building. Therefore, it will be valuable to review *Sharia'h* briefly, in order to see how the concept of city planning was put into practice by the Prophet (peace be upon him) himself in Madina, as well as by his companions and other Muslims in other existing and newly established cities after his death.

2- 4-2 Planning and Building the First Muslim Cities

The Prophet Mohammed (peace be upon him) migrated to "Yathrib" in 622 AD, which was renamed thereafter "Madinatu al-Rasul" (the city of the Prophet) or simply "Madina" (lit. city). His objective was to create a new society in Madina, calling people to Islam, and to form a united *Ummah* nation, based upon Islamic principles, not only as a religion, but also as a living system or a lifestyle.

Madina before the Prophet's (peace be upon him) arrival was not a regular or fully urbanised town. According to Mostafa (1981) and al-Hemaidi (1989), it was a collection of dispersed houses and cottages, which were surrounded by gardens and cultivated fields, with no walls around it for protection from enemy attacks. The market was located on the fringe of the settlement, thus, separated from the residential areas. Upon the Prophet's (peace be upon him) arrival, he became the head of the new-borne Islamic State, the centre of which was Madina. He immediately started work on constructing the key focus of a Muslim city, the Mosque. He also situated his house next to this mosque.

Then, he asked the people of Madina, the *Ansar*[24], to give him the vacant areas surrounding the mosque. When his request was accepted, he planned by *Khatta* (dividing the land into smaller zones and locating the main roads and local mosques in them) the surrounding areas of the Mosque, and distributed these neighbourhoods or *Khittat* (from the verb *Khatta*) among the immigrants or *Muhajirun*[25]. Each one of these *Khittat* were handed by the Prophet (peace be upon him), to each leader of a group of immigrant people, who had some similarities. Mainly they came from the same tribe or the same group of families. Later on, each one of these leaders was responsible for subdividing the neighbourhood or *Khittah* (singular noun of *Khittat*) between his group according to their needs and requirements.

The Prophet's (peace be upon him) aim in this form of planning was to strengthen the social relationships and ties between the residents of the same neighbourhood or *Khittah*, who shared a similar background. Therefore, they lived in a more homogenous environment with each other, sharing the same Islamic feelings and responsibilities. Accordingly, the Islamic brotherhood emphasised and increased the harmonious relationships between all the residents of the different neighbourhood *Khittat*, within the same town, leading to the main goal of Muslim unity.

To provide Madina with the required services, the Prophet (peace be upon him) preserved land, close to the main mosque, for the main market of the town, instead of the small ones scattered on the fringe of the city. The market was a very simple one; on open land, with no buildings. Merchants showed their goods to customers in any unoccupied space they found. Moreover, he told his followers: "this is your market, neither reduce it, nor charge taxes or duties in it", and he appointed a group of people to look after it and keep the trade in order, under the Islamic regulations. Other land on the fringe of the town was also reserved to be used for *Eid* pray,[26] where all the people of Madina, Muslim and non-Muslim, could go to pray the two *Eid* prayers each year.

A hierarchy of road networks was provided in Madina. The main roads, which divide the main *Khittat*, led people from the Prophet's mosque, which was the town centre, to the surrounding residential areas *Khittat.* Smaller roads then connected people from these main roads to the local and cul-de-sac roads within the *Khittat.*

The road pattern in Madina was irregular and organic in shape. Road sizes varied according to the type and volume of people and animals using them. However, main roads were generally 4 - 2.5 metres in width, designed according to the concept of allowing two fully-loaded camels going in opposite directions to pass without difficulty.

The Prophet Mosque, which resembles the centre of a town, both spatially and in terms of administration, was not only a place of worship, rather it was also a place of administration and legislation. The mosque played a central role in Madina. It was the place where the Prophet (peace be upon him) and his followers discussed their matters, received state guests and messengers, taught Islam to the believers, and it even operated sometimes as a health care centre.

2- 4-3 The Planning and Building of Other Muslim Cities

Later on, after the death of the Prophet (peace be upon him) and during the movement of early Muslims to other regions to deliver the message of Islam, Muslims used more or less the same procedure as in Madina, when they planned and built new Muslim towns. For example, a virtually identical procedure was followed in planning and building the cities of Basra (635 AD) and Kufa (641 AD) in Iraq, and Fustat (641 AD) in Egypt, which were new cities built by the Muslim army when they arrived in these regions.

The early Muslims dominated all the coastal areas of the Southern Mediterranean by the end of the Seventh Century AD. According to Benevolo (1980), the first regions the Muslims conquered were the urbanised ones of the Hellenistic East, that covered many great cities such as Alexandria, Antioch, Damascus, and Jerusalem. "They took over these cities and adapted them for their own purposes."[27] With this expansion of Islam, Benevolo explained, the world saw a different and identifiable style of settlements, which corresponded to the Muslim belief and way of life. This Islamic concept of urban life and city building can be perceived in Idris I's[28] statement when he made preparations to establish the city of Fez in Morocco in 172 H/ 789 AD. He commented to an old hermit that "he was going to construct an urban centre where Allah was to be adored, where His book, the Quran, was to be read, and where His divine laws were to be followed."[29]

This rationale governed the fundamental programme of Muslim city building. Indeed, Muslim urbanistic endeavours were involved in such simple, direct and religious purposes as those manifested by the first Idrisid ruler. According to such a rationale and ideology, when the early Muslims arrived at a new region, they not only built their own Muslim cities, but also modified or Islamicised the existing and older parts of the conquered cities, in order to make them suitable for the new inhabitants and their new lifestyles. Cities such as Cairo, Baghdad, Fez and Qayrawan represented the Islamic cities that were built entirely by Muslims, while ancient cities such as Damascus, Aleppo, Jerusalem and Alexandria represented the Islamicised cities.

In fact some of these cities, with an ancient and highly-ordered city plan, such as Damascus or Aleppo, were entirely modified into an irregular street patterns, see Figure 2-6. Both Von Grunebaum (1955) and Sauvaget (1934) indicated that these modifications of the two cities' plans were accomplished during the Arab-Muslim time. Furthermore, Von Grunebaum attributed this process under Muslim rule to a change of focus where "the ancient political

interest in the community, the classical ideals of city-oneness and of the clarity of the architectural (and administrative) design have been replaced by a dominant religious interest."[30]

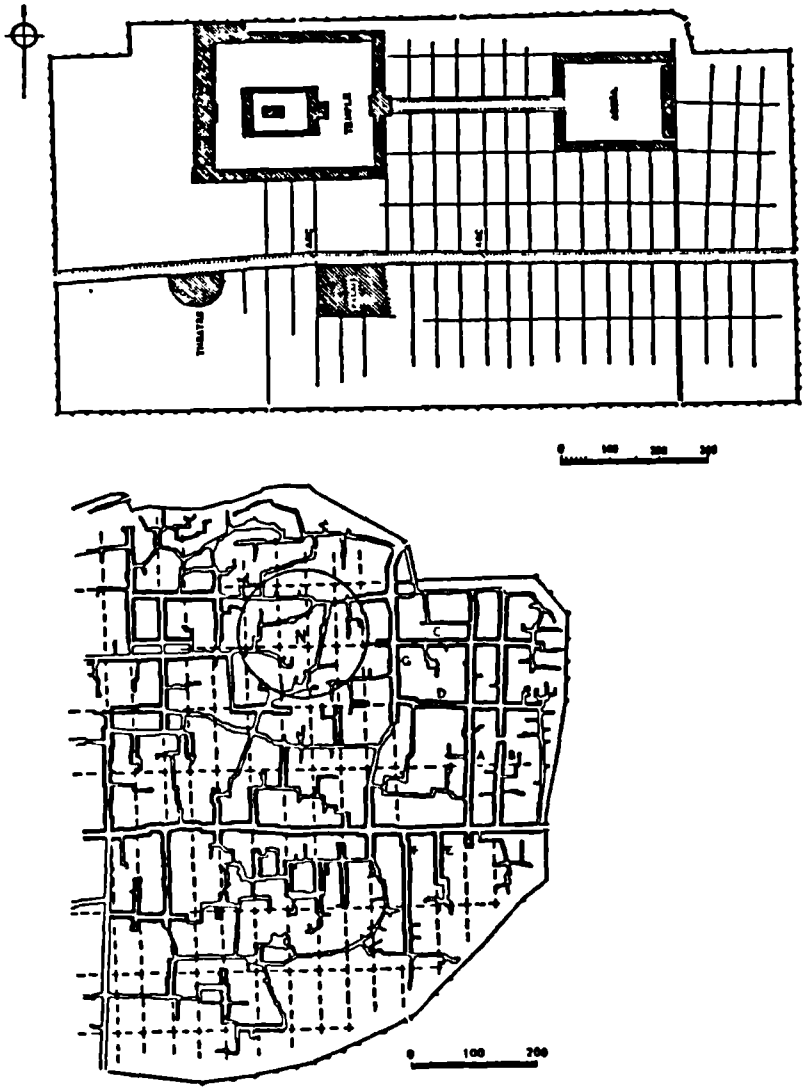

Figure 2-6: The radical modifications of the city plan before the Muslim period (above) and after (below). After Sauvaget (1949), cited in al-Hathloul (1981).

2- 4- 4 Islamic Principles and Guidelines Governing the Physical Environment

Islam responds to the urban life issue from two perspectives. The first perspective is that in Islam the purpose of the creation of man on earth is seen as in the correct service of God, which is to secure him eternal felicity, thus He must be obeyed and worshipped; the people's behaviour and conduct must be governed

by His law and guidelines. The second perspective is motivated from the codes that "Islam outlaws all forms of corruption on earth" (*al-fasad fi al-Ardh*), and that the foremost duty of the believer is " to command the good and prohibit the bad" (*al-Amr bilma'arouf wa al-Nahi 'An al-Munkur*). According to Salagoor (1990), these codes shape the rational relationship between man and his environment, forbidding corruption in it and encouraging all forms of profitable use and development of the environment and its resources.

The source of these guidelines comes from the Islamic legal system *Sharia'h.* There are four major sources for this law: The Holy Quran, the *Sunna* (the divinely inspired behaviour and sayings of the Prophet Mohammed, peace be upon him), the *Ijma'* (the consensus of the majority of Muslim scholars) and *Qiyas* or *Ijtihad* (the use of human reason in the elaboration of law), (Hakim, 1986).

However, it is not the purpose of this study to investigate the legal system of Islam, *Sharia'h,* and its details but rather to investigate what principles in Islam have governed or influenced the house and city forms in relation to privacy of the house and its inhabitants. Therefore, according to the five selected categories of planning regulations, the *Sharia'h* and the traditional practice of city building is investigated in order to find out what those principles are and how they were used in practice in determining the physical form of houses, and the relationship between these principles in terms of privacy.

Although this area of research has not yet been adequately studied, there are a few studies which have investigated and highlighted these principles. From these studies come the very valuable and original piece of work by Basim Hakim **Arab-Islamic cities: Building and Planning Principles**, published in 1986, which carried out a thorough record and analysis of the old city of Tunis, as well as the set of laws and principles governing and shaping its physical environment. Also, the studies of Akbar (1988) and al-Hathloul (1981) have significantly

contributed to this area, and were of great value as a source of information for this part of the study. The Islamic principles include the followings:

2- 4- 4-1 Decision Makers Involved in City Building

The building and shaping of traditional Muslim cities was as a result of the dynamic decision-making process that operated in these cities and was primarily based on decisions made by rulers and citizens. According to al-Hathloul (1981), the *Qadi* (the judge) and *al-Muhtasib*, represented the rulers in the process of building Muslim cities. They were the main people responsible for applying and implementing the rules of conduct that govern the building and planning process within these cities.

The *Qadi*, was responsible for protecting the public's interests, which included "supervision of public roads and buildings",[31] as well as exercising police power in his area. "He stops all infringements on streets and public places and causes the removal of all projections of buildings and all buildings which are too tall. He may proceed on his own initiative regarding these duties without anybody having to lodge a complaint",[32] as stated by al-Mawardi (Islamic legislator and thinker, who died in 350 H/ 1058 AD).

The *al-Muhtasib* was an officer who was effectively entrusted with the application of *Hisba* (to promote good and forbid evil), in the supervision of moral behaviour. As al-Hathloul (1981) indicated, the *Muhtasib* was usually appointed by the state. His duties indicated the *Muhtasib's* specific concern with urban matters. "He was in charge of ensuring the implementation of rules of conduct within the market and all over the city."[33] These duties illustrate that *al-Muhtasib* was in effect a municipal officer.

According to Hakim (1986) these decisions of the rulers were macro in nature - in most cases they created a "planned" effect on the physical environment

of the city, or initiating the building of a *Jamia'* (main mosque), *Mdrassa* (school or college) or extending a road, and so on. On the other hand, the decisions of citizens were of a micro nature, with less discernible effect than the decisions of rulers, but their aggregate effect on the city's urban fabric was ultimately more significant, and had a greater and more direct impact on the lives of most people.

2- 4- 4-2 Land-Use Guidelines

One of the very few people who has written about the impact of Islamic guidelines on land-use pattern in Muslim cities is Salih al-Hathloul, in his important Ph.D. thesis in 1981. He explained that the concept of causing harm appeared to be the decisive factor in determining the location of industries, and they were segregated therefore from the residential areas in Muslim cities. The Maliki jurists, *Fuqaha'* (Maliki is one of the four Sunni schools of jurisprudence) look upon damage as falling into two categories: pre-existing and new. A new source of damage is usually not allowed or has to be removed.

Regarding the pre-existing source of damage, these jurists identify two sub-categories. The first concerns cases of activities which were established before the surrounding properties were built and inhabited. "As generally regarded by *Fuqaha*, prior occurrence confirms the continuation of the activity since the source of damage existed before others came. The second sub-category concerns cases of activities which commenced after the development of neighbouring properties that existed for a long time before any objection was lodged by the neighbours."[34]

Al-Hathloul indicated that in this sub-category there are two possible rulings. First, if the damage is regarded as severe (such as the smoke of bath-fires and furnaces or the dust of threshing), then the use of this should not be continued. Second, if the damage is regarded as minimal or necessary for the

livelihood of the inhabitants (such as the smoke from the bakery or kitchen) then it should be allowed and accommodated.

According to this, heavy or hazardous industries (such as factories for building materials and pottery) were located outside the city wall, and this could be seen in almost all Muslim cities up to the beginning of the 20th century. The less harmful or more essential industries were allowed within the city wall.

2- 4- 4-3 Building Heights

A visual observation of a traditional Islamic city reveals that its skyline is almost a straight line, where almost all its buildings are of similar height. However, in Islam, there are no specific restrictions on the height of buildings, nor are there any guidelines concerning the number of storeys for the house, as al-Hathloul (1981) and al-Shareef (1988) stated. These principles can be observed from the Prophet's (peace be upon him) tradition *Sunna* (the saying and practice of the Prophet Mohammed), when Khalid ibn al-Waleed needed to expand his house, and asked the Prophet's (peace be upon him) permission to raise his house by an extra floor. The Prophet (peace be upon him) replied "build higher in the sky and ask God for spaciousness."[35]

This indicated that the building height and number of storeys are left to the individual Muslims' opinions, needs and capabilities. The 4-10 storey houses of Jeddah, Makkah and Sana'a (the first two cities are in Saudi Arabia, and Sana'a is in Yemen) and many others, showed that what determined the height of houses was the residents' need for space in the house, the availability of building materials and techniques, as well as the shortage of space within the city wall.

Indeed, if a person caused harm to a neighbour by raising his house and opening a window that would overlook the neighbour's house, then that neighbour had the right to stop him from opening that window. Abu Hanifa (the founder of

the Hanafi school, one of the four Sunni schools of jurisprudence) stated that "the person should not be prevented from acting in his property unless the harm to his neighbour is excessive."[36] Salagoor (1990) added that the harm is considered excessive when it totally prevents any real benefit, such as completely stopping the sunlight reaching a neighbour's courtyard.

Hence, the main concern of Islamic law regarding a building's height is actually to prevent causing harm to neighbours, be it through overlooking neighbours or blocking sunlight from reaching the neighbour's house. This could provide a reasonable explanation for the significant similarity of building height in most of the traditional Muslim cities.

2- 4- 4- 4 Family Privacy and House Form

In Islam, protecting the family in a house from the visual observation of a stranger is regarded as the main concern of visual privacy of the house and its inhabitants. According to Hakim (1986), a context that facilitates visual overlooking is regarded as harmful and is an offence in Muslim law and, therefore, must be avoided. The source of any offence is regarded by Muslims' *Qadi* as correctable and/or removable.

Furthermore, Hakim (1986) discussed a *Hadith* that illustrated the severe penalty of a non permitted person seeing another's private domain:

> Abu-Huryrah narrates that the Prophet (peace be upon him) said "He who looks into a house without the occupants' permission, and they puncture his eye, will have no right to demand a fine or ask for punishment."
>
> (Ahmed and al-Nisai')

Hakim (1986) quoted another *Hadith* containing a similar meaning to the one cited above, which stressed the evil intention of the observer who looked inside the private domain of a Muslim house.

> "If a man pushes aside a curtain and looks inside without permission, he has then reached a point which he is not allowed to reach." (Ahmed and al-Termedhi)

The influence of these *Hadiths* on the perception of privacy by Muslims, and the Hadiths importance in the design criteria of the traditional built environment in Muslim cities is enormous. The principle idea behind these Hadiths are discussed by Hakim (1986) in his study of the old Medina in Tunis, and his analysis of the characteristics of its built environment, the relationship between buildings and houses in the city, in the light of this *Hadith* and others. Hakim, also explained how this privacy principle affects dwelling design. Warren and Fathi's (1982) study confirms Hakim's view. They surveyed and studied the characteristics of traditional Baghdad houses. In their study, they explained that the traditional houses in Baghdad obey one fundamental rule, being planned around a central open courtyard known as the *Hosh* or *Fina*. In their opinion the dominant reason behind this rule is privacy:

> "the overriding consideration in the design of the house was privacy and it is significant that the local word for a house, *maskan* derives from the root *Sikun* which literally means quiet. In the traditional life of Muslims there was a sharp divide between the public world and the private, between the man's world and the woman's world."[37]

They conclude from their study in traditional houses in Baghdad, that every house is a private, introvert enclosure, shut off from its surroundings by high and solid walls. The house provides its occupants with a total contrast to the hustle of life in the street, as well as giving them complete privacy and protection from unwanted observation by outsiders and neighbours in adjoining dwellings.

2- 4- 4- 5 Controlling the Opening of Windows

If the right of a neighbour's privacy was not harmed or damaged, then there were no restrictions in Islam on residents regarding the opening of windows in their houses, whether it was for the purpose of allowing in sunlight and air, or

simply for beautification. Only if the opening of a window was going to cause excessive harm to a neighbour's privacy would such an act be stopped by the neighbours, through agreement, dialogue, or in the case of disagreement, through the *Qadi* judge's order.

Therefore, allowing the opening of a window was governed and dependent on several points and cases. In the case of opening the window of a house facing a street, this was allowed providing the people outside could not see the inside of the room. According to Hakim (1986), if the height of the window was low to a degree that exposed the room to people passing-by, then it was not allowed, or the height of the window would have to be raised to a level which was above a person's height.

In the case of an old (or pre-existing) window that overlooked a neighbour, Hakim stated that "if the window or door is not utilised by its owner and was creating harm, then two opinions prevail. The most common practice is that it should remain if its owner wants to retain it. Some legal scholars would order the window or door shut, even if it was old, if its harm to others was found to be greater than its use to its owner."[38]

If that "old" window overlooked adjacent vacant land, it provided its owner with the right of first usage. However, in the case of a newly-built house on that land, it is the duty of the owner of the new house to design and build it in a way that would not allow any window to overlook his house. As Hakim stated, "no burden or responsibility is placed upon the first neighbour regarding placement of openings in relation to adjacent undeveloped lots."[39] This case remained an important law in Islamic city building. It is a clear case of the significance of the sequence of development upon building decisions and the built form resulting from it.

A "new" opening that overlooked a neighbour's courtyard was ordered to be permanently shut. This situation generally occurred when a new room or floor was added to an existing house. If the window was placed so high that a person inside the room could not see the neighbour's courtyard, then it was allowed, on the condition that it would not cause harm to that neighbour's privacy. This law, also, remained a significant factor in forming the built environment and physical relationships between adjacent houses.

2- 4- 4-6 Parapet Height and Use of Rooftops

The rooftops of the traditional houses were of significant use in most Muslim cities, where residents tended to use them for sleeping or socialising in the evening during the summer season. Al-Hathloul (1981) explained that in the case of a person opening a door to his rooftop which allowed him to see his neighbour's house, then this door should be closed.

He also narrated another case where a person had built a mosque on the top of his shop. The people using that mosque for praying were able to see a neighbour's courtyard. The case was brought to a *Qadi* judge, who ordered the closing of that mosque until the owner of the shop built a wall around the mosque in order to protect that neighbour's privacy.

These two cases pointed out that a roof could not be used without being surrounded by walls protecting the adjacent neighbours' houses from being overlooked by the users of this rooftop. The height of this wall or parapet should be high enough to prevent a person standing on the roof from observing his/her neighbour's houses.

Lastly, these guidelines and principles were not developed to fixed standards or framed in a uniform set of control laws similar to the ones we know today, nor were they adopted universally around the Muslim world. Rather, they

were certain laws the *Sharia'h* practised according to the available guidelines or principles found in the Quran and Sunna. In the case where there were no texts in these two sources from which an appropriate analogy might be drawn, the main goal and spirit of the *Sharia'h* could be realised by ruling on the basis of al-*Masalih al-Mursalah*, those beneficial actions not contained in the sources of the *Sharia'h*.

The bases of *al-Masalih al-Mursalah* as regards building and planning laws are conducted in accordance to the principles that "the repelling of evil takes precedence over the acquisition of benefits".[40] Once the requirement of the *Sharia'h* have been fulfilled, there remains a wide scope for freedom of choice in planning and designing a building, as well as setting and adopting new planning laws and principles that suit the time, place and needs of the public.

2- 5 Planning Regulations in Saudi Arabia

The urban planning process and practice went through three stages in the cities of Saudi Arabia. The first stage was the "traditional approach" era, which dated from early human settlement in the area to the 1350s Higry / 1930s AD. The second stage was the "transitional approach" era, from 1357/1937 until 1390/1970. The third is the "modern approach" era, which continues to the present day.

These three stages are discussed and analysed in this section, from the aspect of planning regulations, particularly the five selected categories. In any case, a general broad view of each stage is required, in order to put these regulations and their historical development in their original context.

2-5-1 The Traditional Planning Approach (early history - 1357/1937)

The traditional Islamic principles were the factors influencing and governing the building of Saudi Arabian cities and towns. These principles were influenced by two main sources; the Islamic *Sharia'h*, and the tradition and *Urf* (common practice) practised and shared by the local population. The Islamic Sharia'h was discussed earlier in this chapter. The tradition and *Urf* were the cumulative results of a long series of trial and error experiences, formed and based upon the local conditions of climate, availability of building materials and techniques, as well as the self-imposed social and common norms and practices of *Urf.*

The *Urf* was an effective moral code, more than a bylaw, due to its pressure on the local inhabitants of the city or region. In several respects it determined building regulations, in the absence of Islamic principles or guidelines concerning that building law or matter. An example of this is the bent corridor leading to the courtyard in the house, for the purpose of preserving the privacy of the house courtyard. Another example is the pattern decorating the external facade of traditional houses. However , the principles of *Urf* have only slightly affected the rules in shaping and forming the physical environment of the traditional Muslim city, in comparison to the Islamic *Sharia'h* laws.

2-5-2 The Transitional Planning Era (1357/1937 - 1390/1970)

Before 1357/1937 there was no modern written document specifying what the municipality rules were, or any such written document setting out building and planning regulations or guidelines. It was not until 1357/1937, under pressure from the rapid increase in urban population, that urban policies were needed to manage, control and guide the growth and development of the main cities of Saudi Arabia, namely Makkah, Madina, Jeddah and, the capital, Riyadh. In that period several urban planning policies and regulations were produced. These were:

2-5-2-1 The "Makkah Municipality and Municipalities" statute (1357/1937)

The first ever statute of urban planning policy and regulations in the history of Saudi Arabia was introduced in 1357/1937. It was called the "Makkah Municipality and Municipalities Statute". As the name indicates, it was issued by and for Makkah municipality, being the religious capital and the administrative centre in the 1350s/1930s and 1360s/1940s. It was later circulated to and followed by other major cities in the country. The statute was issued under Order No. 8723, and stated:

> "The municipality of Makkah and other municipalities are the bodies responsible for the supervision of the town's organisation, their beautification, and the work needed to result in their having an enhanced scenic setting. The municipalities also have the authority of general supervision for the public interest and for the betterment of utilities and services according to the limits stated in this statute." (Al-Anzimah, Vol. 1, p. 11) [41]

Although, this statute did not specify the planning or building regulations, nor even guidelines for them, it represented the first written document regarding the municipalities and their duties. This gave the municipalities the first statutory power they needed to supervise and manage the cities that adopted this statute. Also, it represented the first legal and organisational step or stage in departing from the traditional approach of governing the city's buildings and growth, as well as shifting power and responsibility from the *Qadi* and *al-Muhtasib* to the municipality.

Furthermore, in addition to the above mentioned duties, the statute also gave the municipality the authority and power to set up regulations that might be required, particularly those concerning buildings, streets and public spaces. Salagoor (1990) indicated that these regulations included the setting of land-use planning regulations. However, due to the lack of experience and insufficient resources to produce such regulations or plans at an early stage in the urban

development of Saudi Arabia, the municipalities started to set their regulations and plans case-by-case according to needs and available resources.

2-5-2-2 The "Roads and Buildings Statute" (1361/1941)

After a few years, and under pressure for more land for urban development, the municipality of Makkah, produced another planning statute in 1361/1941. It was called "The Road and Buildings Statute" and was circulated to all municipalities in the country. This Statute formed the authorities' concept and perception of town planning at that time. It is considered to be the first example of a planning act or ordinance specifying planning and building procedure and regulations, in addition to guidelines for land-use planning and land subdivision regulations. The Statute went even further by specifying the penalties and punishment for buildings or land not complying with these regulations.

The aim and structure of this Statute was very similar to the established Western approach of planning practice, where the main aim was to provide an efficient supervised use of urban areas. Salagoor (1990) indicated that this statute seemed to be borrowed from neighbouring countries, such as Syria or Egypt, as it contained some subjects which had not been known or practised before in the country.

The Statute emphasises land-use and requested every city municipality to issue a land-use map. The Statute included a guideline for the separation of land-uses into residential, commercial and industrial. Also, al-Hathloul (1981) stated that these maps were required to indicate "the placement and width of roads and lanes, the areas designated for building, the special zones assigned to buildings according to their use, the existing built-up areas, and the areas designated for future growth."[42] Furthermore, Article 24 introduced some planning regulations for new development, specifically concerning the setback. This was the first time

the concept of setback had been introduced as a consideration in the city's physical environment, Art. 24 stated:

> "It is permissible for the building authority to establish a building line with a maximum of fifteen metres from the organisation line [the street limit], on the condition that establishing such a line would in no way prevent the construction of buildings that are suitable for the statute of the district.
> When the building line is established in any residential district, then no building should be erected beyond this line, except for the fence." [43]

The Statute also contained important regulations for land subdivisions, which stated (also for the first time) a minimum lot area and dimensions (the minimum acceptable area was 98 sq. metres for residential lots). In general, these regulations were simple in nature and covered only some aspects of development controls. They did not, for example, regulate building height, number of floors or site coverage.

Although this statute was not clearly drafted, with many gaps and did not specify the methods that were going to be followed in order to ensure the implementation of these standards, it was, nevertheless, regarded as very important in the history and development of urban planning practice in Saudi Arabia. It formed the starting point for every city municipality in the country, as well as giving them the power and the obligation to carry out planning, supervision and controlled development in their districts. Furthermore, for the first time minimum standards were set and specified, rather than simply being followed by virtue of the traditional co-operation and shared understanding within society. For the first time in the history of city building the concept of setback was introduced. This formed the starting point for including setback requirements in every planning regulations ordinance introduced by municipalities around the country.

Both al-Hathloul (1981) and al-Shareef (1988) regarded this statute as being rather unsuccessful in terms of being adhered to and reasonably implemented by municipalities, as well as being unsuitable for the socio-cultural

values of the inhabitants. An additional point to the above is the Statute's inconsistency with the conditions and capabilities of municipalities at that time. To enforce this statute, a much larger and more experienced group of staff would have been required. Sufficient resources were desperately needed by the very small and almost powerless municipalities of that period, to make the Statute more effective.

This deficiency in resources and staffing was quickly felt, and the need for maps of existing buildings and streets was also felt strongly. The Egyptian Survey Department was soon called upon to help in preparing detailed maps for the major cities of Saudi Arabia. This procedure and work progressed very slowly. For example, in 1365/1946 maps for Madina were prepared, and in 1366/1947 Makkah maps were prepared, and only in 1385/1966 were Riyadh's maps drawn up and finalised.

2-5-2-3 The Planning and Construction of al-Malaz in Riyadh (1377/1957)

During the preparation of Riyadh's maps by the Egyptian Survey Department, the city's authority was under tremendous pressure for land and development in the city. This was mainly due to the transfer of Government ministries and agencies from Makkah to Riyadh in 1953. A fast and immediate solution was therefore needed to accommodate these Government officials and their families. Also, as Faden (1983) stated the solution had to be a modern and advanced model of planning and style, as it was going to represent the image of modernity and urbanisation in the capital of the country.

A 4.5 km. site north-east of Riyadh was chosen to accommodate this housing development. This site was then known as al-Malaz, and according to al-Hathloul (1981) contained 754 detached houses (villas) and 180 apartments. Al-Malaz was planned according to the gridiron pattern of streets, with rectangular

blocks, square lots and a hierarchy of streets, with a 60m wide boulevard that divided the site into two parts. It contained a public library, municipality hall, public garden and some buildings for schools (which were turned into the first national university later). It also contained a race course, a football field and a public zoo. In other words, it was a city in itself, with an area of 500 hectares, almost larger than the whole city area at that time, see Figure 2-7.

The villa was introduced in this district as a new concept for a house form for the first time in the city of Riyadh. It was characterised by free-standing buildings, on square lots of 25 X 25m. The villa was designed and planned according to setback requirements from all four sides; all openings were oriented outwards, looking at the four yards and overlooking the adjoining street and villas, see Figures 2-8 and 2-9.

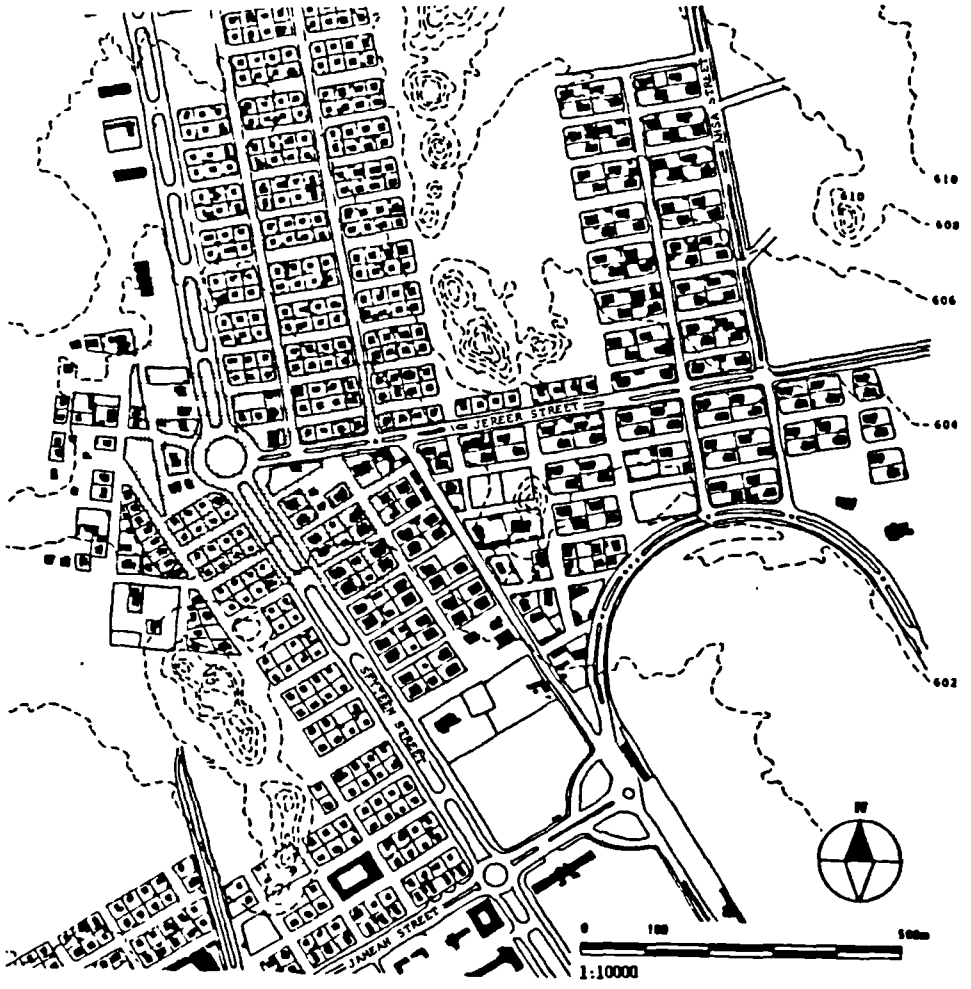

Figure 2-7: Al-Malaz district in Riyadh, a city within a city, with the new street pattern, the grid, and the new house form, the villa. After al-Hathloul (1981)

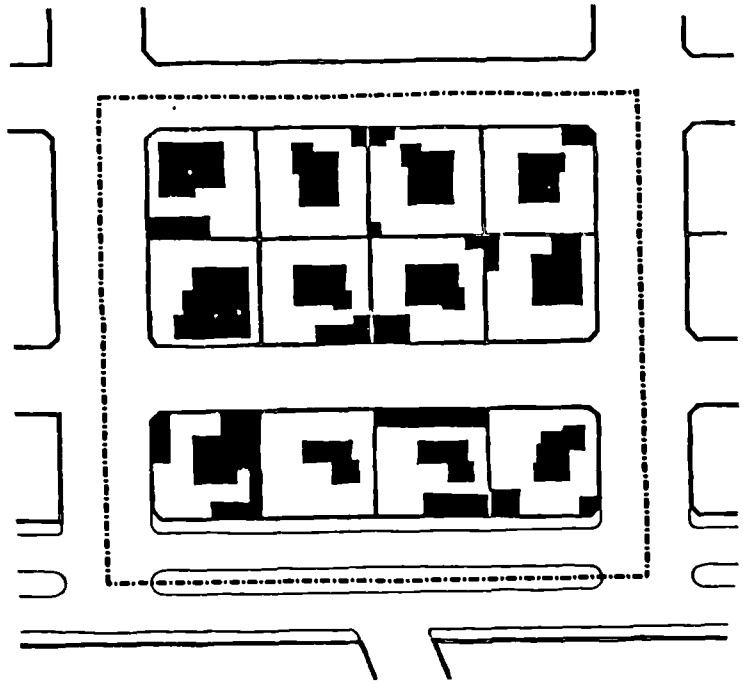

Figure 2-8: A block with lot subdivision in al-Malaz, Riyadh. After al-Hathloul (1981).

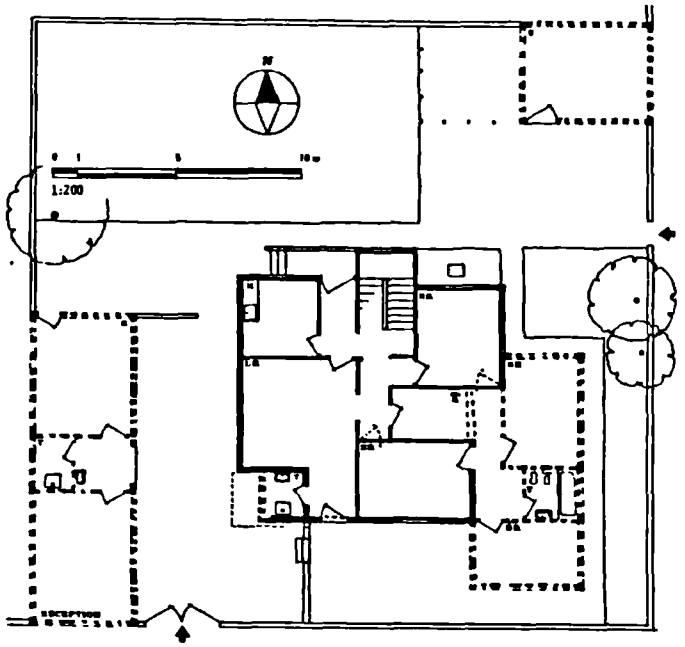

Figure 2-9: A typical villa from al-Malaz, Riyadh. Free-standing, setback and yards from all sides. Heavy dotted line-areas added later by the owner. After al-Hathloul (1981).

Comparing this new urban fabric and form to the traditional ones of Riyadh, there is now a significantly lower population density (1/5 of the traditional area), much wider streets (some of 60m in width compared to the traditional 5-8m ones), and a detached and outward-looking house form

(compared to the traditional attached inward-looking house form). Table 2-1 illustrates a comparison between the traditional area of old Riyadh, and the contemporary residential districts of al-Malaz and King Fahad suburbs. The latter suburb resembled the same planning concept as al-Malaz, and is included in the comparison due to the availability of more data for the King Fahad suburb.

Table 2-1: A comparison of the planning aspects between the traditional and contemporary residential suburbs in Riyadh.

Measures	Traditional Neigh.	Contemporary Neigh.	
	Al-Dirah	Al-Malaz[c]	King Fahad[d]
Population	2142[a] persons	5100[a] persons	9690[a] persons
Location	Central Riyadh	North-east	North
Area	7[a] hect.	85[a] hect	111[a] hect.
Population Density	306[b] person/hect.	60[b] person/hect.	87[e] person/hect.
Year of Establishment	Before 1940	1957	1975
Total No. of Dwellings	268[a] units	934	1736
No. of Detached Dwellings	0	754	896
No. of Attached Dwellings	268[a] units	0	0
No. of Apartments	0	180	840
Family Size	8 persons/dwel.	--	7.3[f] persons/dwel.

a. Estimated
b. Al-Hathloul, 1981.
c. Part of al-Malaz
d. Part of King Fahad suburb
e. 65 persons/hect, if apartments are excluded.
f. For detached dwellings only

What was not seen at the time of al-Malaz's beginnings was the impact it would later have on the whole of residential planning in Riyadh and on the rest of Saudi Arabia. This project introduced a new foreign concept of urban planning, and set a new aim and method for future urban development in the residential areas. As al-Hathloul (1981) stated:

> "The grid as street pattern and the villa as the new house type both became models for the new physical development that took place in the 1380s/1960s and 1390s/1970s in every city and town in Saudi Arabia." [44]

Al-Malaz's style was regarded by the city's authority as an official model of how modern houses and neighbourhoods should be. It was seen, by both the city's authority and public as the ideal model and expression of modernity and progress in terms of the urban planning model, house form, building material and technology, in sharp contrast to the traditional neighbourhood, house form and building materials. The people who resided in al-Malaz villas were high - and middle - rank Government employees and, as al-Hathloul described it, "were highly regarded by other segments of the society, and their lifestyle was greatly coveted." [45] These residents were considered by the public as the foremost opinion makers in setting taste and modern lifestyle in Saudi Arabia.

When the residents of Riyadh, as well as the city's visitors from other regions in the country, saw the impressive free-standing villas and the wide streets of al-Malaz, and its newly planted trees and paved roads, they were impressed with this urban lifestyle and house form. Hence, living and owning such a house in similar suburbs became the vision or the dream of almost everyone thinking about and planning for the future.

However, the villa and the grid street pattern were first introduced in Saudi Arabia in the late 1360s/1940s, in al-Dammam and al-Khobar in the eastern region of the country. Fadan (1983) explained that these two forms were first introduced by the architects and engineers of ARAMCO (The Arabian-American Oil Company), when they established the new town of al-Khobar and developed a large new area of al-Dammam.

Originally, the early buildings and housing projects built by ARAMCO in these two areas were for accommodating their employees, both foreigners and locals. However, later on, under the growing need for land development, and

lacking proper experience and skills, the municipal authorities sought the help and experience of ARAMCO's architects and engineers to make development plans for new areas in the major cities of the region. These municipal authorities were impressed by the villa form and the grid street pattern introduced earlier in the ARAMCO housing projects. Also, the ARAMCO architects and engineers responsible for planning these new areas, were not aware of the traditions and socio-cultural values of the inhabitants, as most of them were Americans who spent only very short periods in these areas. Nevertheless, for the first time, the gridiron street pattern and the villa form were introduced to the Saudi Arabian public.

2-5-2-4 The 1380/1960 Circular of the Deputy Ministry of the Interior for Municipalities.

As a result of this new development, in the late 1380s/1960s, the Deputy Ministry of Interior for Municipalities issued a significant circular for a new set of planning regulations, applicable to low density-single family dwellings (villas), which contained the following:

> "1- Prior to the issuance of building permits, confirmation must be made of the existence of concrete posts.
> 2- Plots are to be sold according to their drawn and established boundaries, and should be strictly prohibited from further subdivision.
> 3- Heights should not exceed eight metres, except with the approval of the concerned authority.
> 4- A built-up area generally should not exceed sixty percent of the land area, including attachments.
> 5- Front setback should be equal to one-fifth of the width of the road and should not exceeds six metres.
> 6- Side and rear setbacks should not be less than two metres and projections should not be permitted within this area.
> 7- Buildings on plots of land specified for utilities and general services should only be permitted for the same purpose."[46]

The circular was sent to and adopted by all municipalities in every city, town and village in the country. It came as a confirmation and enforcement of the villa as the only acceptable house form in the newly developed areas for single family-low density dwellings. This form was enforced by the square, or almost

square, lot shape, site coverage and, most importantly, the setback requirements from all sides of the lot.

The circular planning regulations continued to be used and supervised by municipalities, through checking the drawings of all proposed houses before granting approval for the building, and through supervising the construction works, to ensure that houses complied with the approved design drawings. This was the case until comprehensive planning came to the cities of Saudi Arabia, through foreign planning consultants in the 1390s/1970s.

2-5-3 The Comprehensive Planning Era (1390/1970 - present)

The rapid increase in the country's revenues through oil sales, significantly accelerated the urban development and growth of cities almost everywhere in Saudi Arabia. This increase in the country's wealth led to an increase in job opportunities all over the country. Also the Government adopted a policy to encourage the urbanisation of the nomadic and rural population. These two factors resulted in tremendous pressure on the local municipalities to approve any land as suitable for development.

However, the local municipalities lacked sufficient experience to produce and manage large scale urban planning policies and plans. Also, the increase in the country's revenues made it possible to employ and bring in the much needed experience from foreign countries, in order to ensure the best possible planning for Saudi Arabian cities.

These consultant companies, such as Doxiadis Associates in Riyadh, and Robert Matthew, and Johnson-Marshall & Partners in the western region, provided simple future guidelines and "master plans" for development and land-use plans. These plans and guidelines were based on the limited or quickly gathered data and information available at that time. Therefore, they were soon

found not to match the forecasted growth in urban population and the required plans for land and development. Al-Shareef (1988) stated that in most cities the population doubled in less than half the time forecasted by these "master plans".

As far as planning regulations were concerned, almost all these plans maintained the regulations introduced by the earlier 1380/1960 circular and regulations. However, some of these master plans made some modifications to the setback and other regulations, concerning residential low-density dwellings. But most of these modifications were not followed or adopted by the municipalities, and older regulations continued in use in all newly planned and developed suburbs.

There were several reasons for not adopting the new plans and or modifications to the planning regulations. For example, in the case of Riyadh, the master plan prepared by Doxiadis proposed new land subdivision regulations for the low-density residential dwellings areas. The new regulations proposed rectangular lot shapes instead of the square lots of the al-Malaz style. The implementation of the proposed planning regulations, and particularly the setback requirements, largely depended on the sub-division regulations being followed first. Hence, as the municipalities did not adopt these sub-division regulations, there was no logic in adopting the new planning regulations, which were not reasonable to implement in any case on the square lots, and impossible to implement in the case of 400 sq. m. lots, see Figure 2-10.

It might be surprising to observe that Doxiadis' Master Plan for Riyadh indicated, as one of the plan's aims, to preserve the character of Riyadh's old city, and the cultural values it represented. It stated that:

> "The distinctive character [of older Riyadh] which reflects a rich historical and cultural tradition, is a valuable asset. This character should, as far as possible, be preserved and its principles, which reflect the social life and customs of the people and the physical conditions in Riyadh, should be used to inspire the design of the new public zones and residential communities to be built in the city."[47]

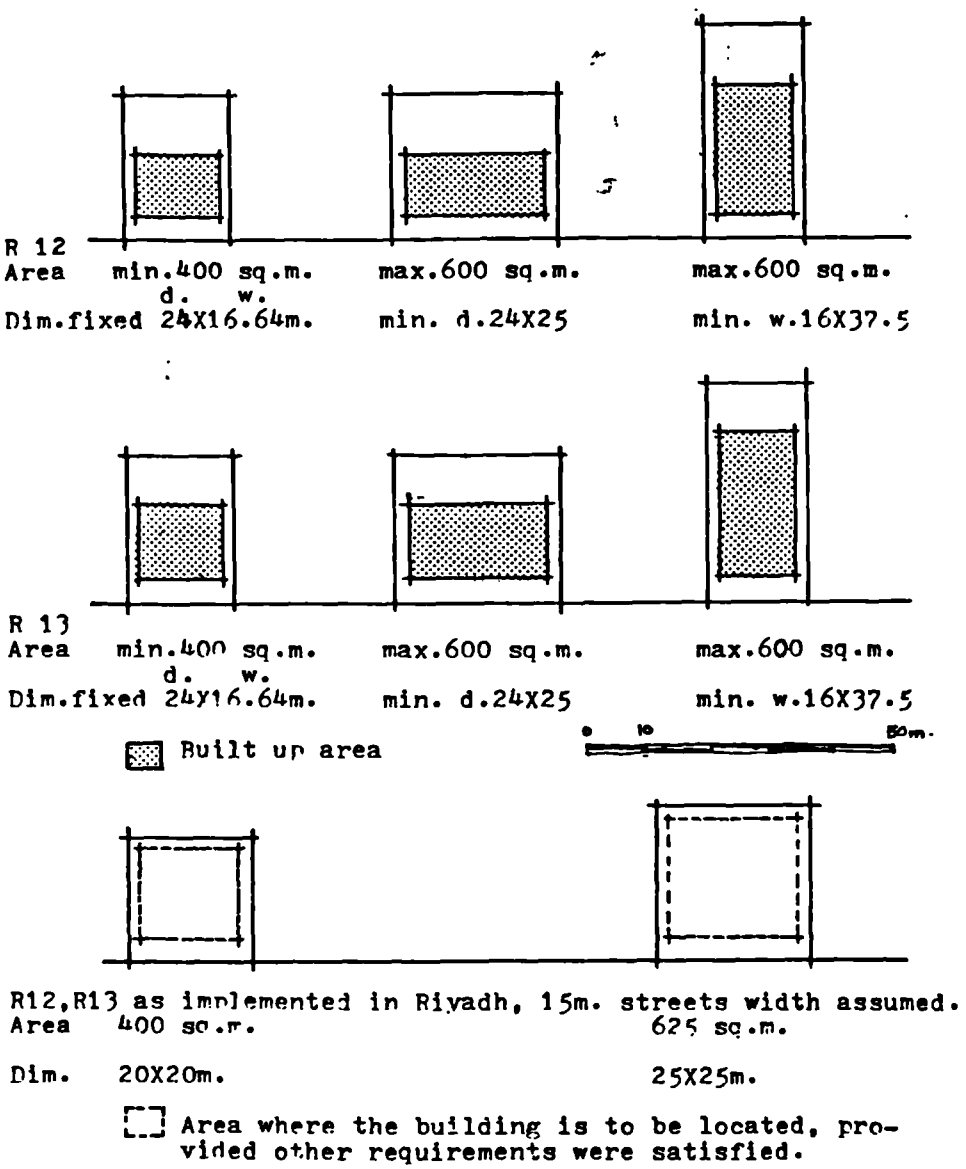

Figure 2-10: Setback requirements and lot dimensions and shape, according to the Doxiadis Master Plan, Riyadh. Above, requirements for residential R12 zones. Middle, requirements for residential R13 zones. Below, the actual implementation of R12 & R13 in Riyadh. After al-Hathloul (1981).

This aim, or recommendation, significantly contradicted the proposed planning regulations of setbacks and site coverage. If there was a house form enforced by these regulations, it was going to be nothing except the villa form. It was very hard to understand how the Doxiadis plan aimed to preserve the traditional urban character of the city, yet at the same time enforced and

confirmed the villa as the model house form, which was significantly opposed to the traditional house form of the attached courtyard house. Indeed, the municipal authorities understood and interpreted these regulations as a confirmation of the villa as the only present and future low-density single family house form for the Saudi Arabian family, regardless of its social, cultural and climatic unsuitability for the public and region it was imposed upon.

Thus, all the suburbs and neighbourhoods planned and approved by the municipality of Riyadh chose the villa house form as the only form for low-density single family areas. The same concept was perceived and adopted by all other municipalities in the country, and the villa became the model house form for all Saudi Arabian cities, towns and villages.

In the case of Tabuk, for example, Robert Matthew's proposed master plan for the city maintained the older planning regulations stated in the 1380/1960 circular. The master plan did not recommend any significant changes to these regulations. The emphasis of the plan was on the land sub-division regulations and on the importance of maintaining these planning and sub-division regulations in all new developments. This was a result of the very loose municipality control in Tabuk over the new development, which mostly complied with the regulations.

Many reasons were behind this loose supervision. The most important was the unavailability of sufficient and experienced staff members in the municipality, in order to supervise the construction of the new houses ensuring the municipality's adoption of the approved designs and planning regulations. In particular Tabuk municipality was established very recently (in the mid 1380s/1960s) with very limited resources, power and staffing.

However, the unexpected and huge increase in oil prices in 1973 significantly increased the revenues of the country. This accelerated the growth of and development of Saudi Arabian cities beyond any projection in these "master

plans". Towards the end of the 1970s, the municipal authorities realised that a review and revision of the cities' master plans was definitely needed. Hence, a new group of foreign consultants was called upon to prepare a new generation of master plans for major cities in the country.

In Riyadh, for example, in 1396/1976 SCET International/SEDES from Paris were assigned to revise Doxiadis' Riyadh Master Plan, and to prepare development studies for the city. In Jeddah, Sert Jackson International prepared a revision and some planning studies for the city in 1401/1981, and in Tabuk a new comprehensive (or master) plan was prepared by RSH International in 1404/1984.

This time, the problem of privacy violation was well-known and clearly felt by the municipality authorities, due to several factors. Firstly, the number of villas had by that time increased very significantly, and become the dominant low-density single family dwelling in Saudi Arabian cities. Secondly, the number of the Saudi Arabian architects and planners had increased as well, and they where in charge of the planning department of almost all the municipalities.

The privacy problem was therefore seriously considered by, for example, the new master plan of Riyadh that was prepared by SCET International. The "Planning Regulations" ordinance of this master plan stated as a major aim that a solution had to be found to this privacy problem, or at least to contain and decrease its effects. Under the heading of "Aims of Zoning Regulations", the problem of privacy violation was mentioned twice. These were:

> "- To protect the privacy of individual houses and private grounds [yards]. Visual privacy is the most important factor determining the design of private home in Saudi Arabia. Zoning regulations should provide a legal framework for safeguarding the privacy of each home and ensuring the full use of a property by its owner, in accordance with Saudi traditions and jurisprudence.
> - To safeguard and provide proper light and air, a healthy environment, privacy, access and aesthetics." [48]

These two aims indicated two significant points. To begin with, for the first time the problem of privacy in Saudi Arabian houses was clearly acknowledged and regarded as one of the most important planning issues. Also, the modern planning documents and plans demonstrated for the first time an appreciation of the Saudi tradition and jurisprudence involved in the design and building of the traditional house and urban fabric. This was considered a significant development in modern planning practice in the country. It indicated the need for and the intention of linking or reviving the traditional principles of city building to modern planning regulations.

All prior planning documents paid little attention and appreciation, and in many cases showed complete ignorance, of the traditional practice and guidelines of traditional cities of Saudi Arabia. However, the SCET International plan acknowledged these traditional practices and principles, for the first time in a contemporary planning document in Saudi Arabia. It not only acknowledged their existence and results, but also indicated an intention to attempt to include these principles in the new plan. Although, the SCET International plan showed weak and little use of these traditional principles, it was a promising effort for measures in future studies and plans. By acknowledging traditional practices, it may have helped decrease the effects of privacy violation in Saudi Arabian houses, and it might have allowed an effective and complete solution for the problem to be found as traditional planning practice had done.

For villa dwellings, the SCET plan proposed two sets of planning regulations: one for all new residential districts in Riyadh (R111), and another one for the al-Erija district. These are discussed in more detail below:

2-5-3-1 All Residential Districts (R111)

The minimum size of such lots was set at 500 sq. m., raised from the 400 sq. m. stated in the previous master plan. For the regulations of setback and site

coverage, the plan adopted exactly the same regulations as the 1380/1960 circular. For details of these regulations refer to Figure 2-11, below.

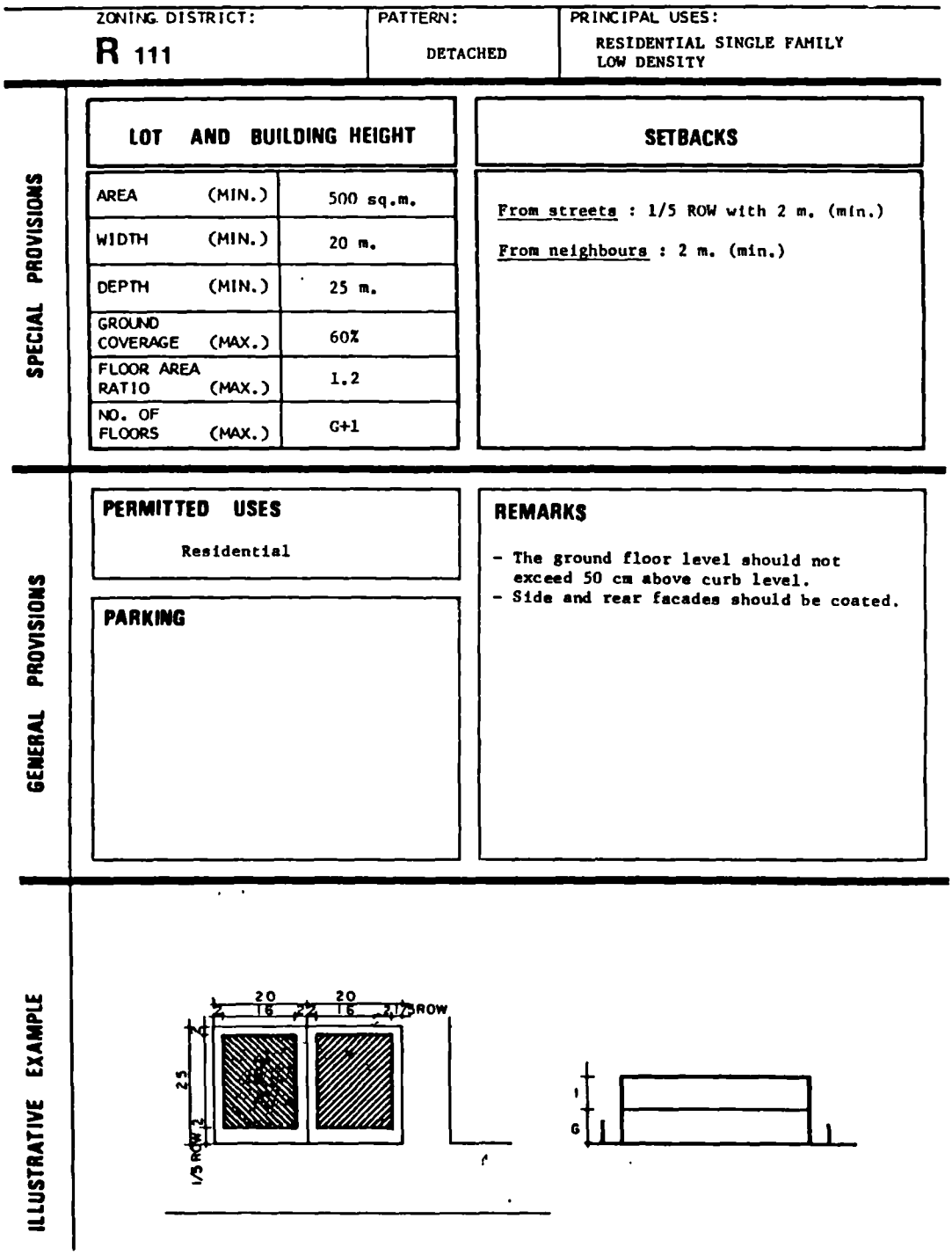

Figure 2-11: Planning Regulations for the residential zones of R111 in Riyadh proposed by SCET International (1981).

Other new regulations introduced by this plan were the use of number of storeys to control building height, instead of the 8 metres maximum height for buildings used in the 1380/1960 circular. Also, the Floor Area Ratio was introduced for the first time in this plan, but the 1:1.2 ratio adopted for this residential use did not add anything new, as the regulations of site coverage (60%) and the two storey height controls would result in almost the same ratio anyway (two times the 60% site coverage is equal to 120% of the site area, which is a ratio of exactly 1:1.2).

Also, the plan stated that the dwelling ground floor level should not be more than 0.5 metres higher than the level of the street curb. Although, it was not stated nor was it clear what the aim of this regulation was, it was most probably to reduce the level of the first floor, and reduce the overlooking violation possible from first floor windows, as the higher the level of this floor is, the more overlooking effects windows have on adjoining houses.

The new controls of overlooking proposed by this plan were one of its main contributions to planning regulations practice in Saudi Arabia in general, as well as the acknowledgement and search for a solution to reduce this privacy violation in Saudi Arabian villas. Under "Article 6: Window Openings", the plan proposed two regulations to protect dwelling yards from neighbours' overlooking. First, it proposed a formula to be investigated for each window of the proposed new house, in relation to the adjoining houses yards, see Figure 2-12 for details. If the formula was met, the window would be permitted. If the formula was not fulfilled, a set of visual obstructions and controls were applied to that window, in order to prevent overlooking from this window onto the neighbour's yard, see Figure 2-13 for details.

There are several points that are not clear or lack important identifications and definitions, as well as some aspects that were not considered and taken into account in these overlooking controls. The plan did not address the following:

Article 6 : Window Openings

Section 6.1: Minimum distance for unobstructed window Openings

In R districts, the elimination of setback requirements necessitates control of visual privacy by regulation of window openings and sight lines. A property owner is allowed to enjoy his house and grounds without his privacy being infringed by people looking from second or higher floor windows of adjacent houses. The minimum distance at which a window can be opened without infringing on another's privacy is given by the following formula

$$X = d \frac{5-L}{L-2}$$ where

d is the width of the ground to be visually protected
L is the height of the dividing wall
X is the minimum distance at which a window can normally be opened in a facade.

If X is less than $d \frac{5-L}{L-2}$, the owner of house B must either build a blind facade from the second floor up (without windows) or comply with a window opening design which prevents direct sight lines into his neighbor's property as specified in section 9.3. For example, if d = 3 m (typical setback in areas with villas) and L = 3 m, X is equal to 6 m. meaning that the owner of House B must construct his house at least 6 m away from the property line of house A if he wants to have windows on the second floor. (See Fig.5).

FIGURE 5

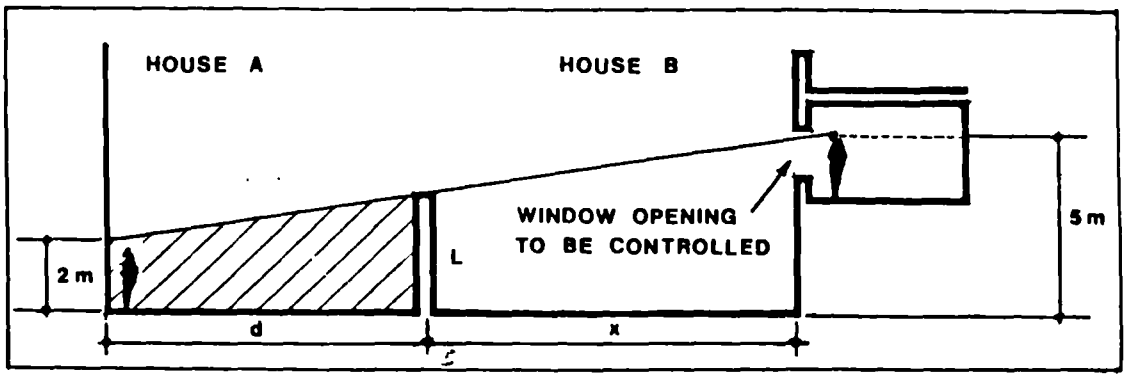

Figure 2-12: The formula for preventing overlooking by new house windows as proposed by SCET International (1981).

Section 6.2: Authorized window openings for blind facades

The following types of window openings are recommended for use in blind facades. Any other design shall be subject to review and approval by the Authority. (See Figures 6, 7 & 8).

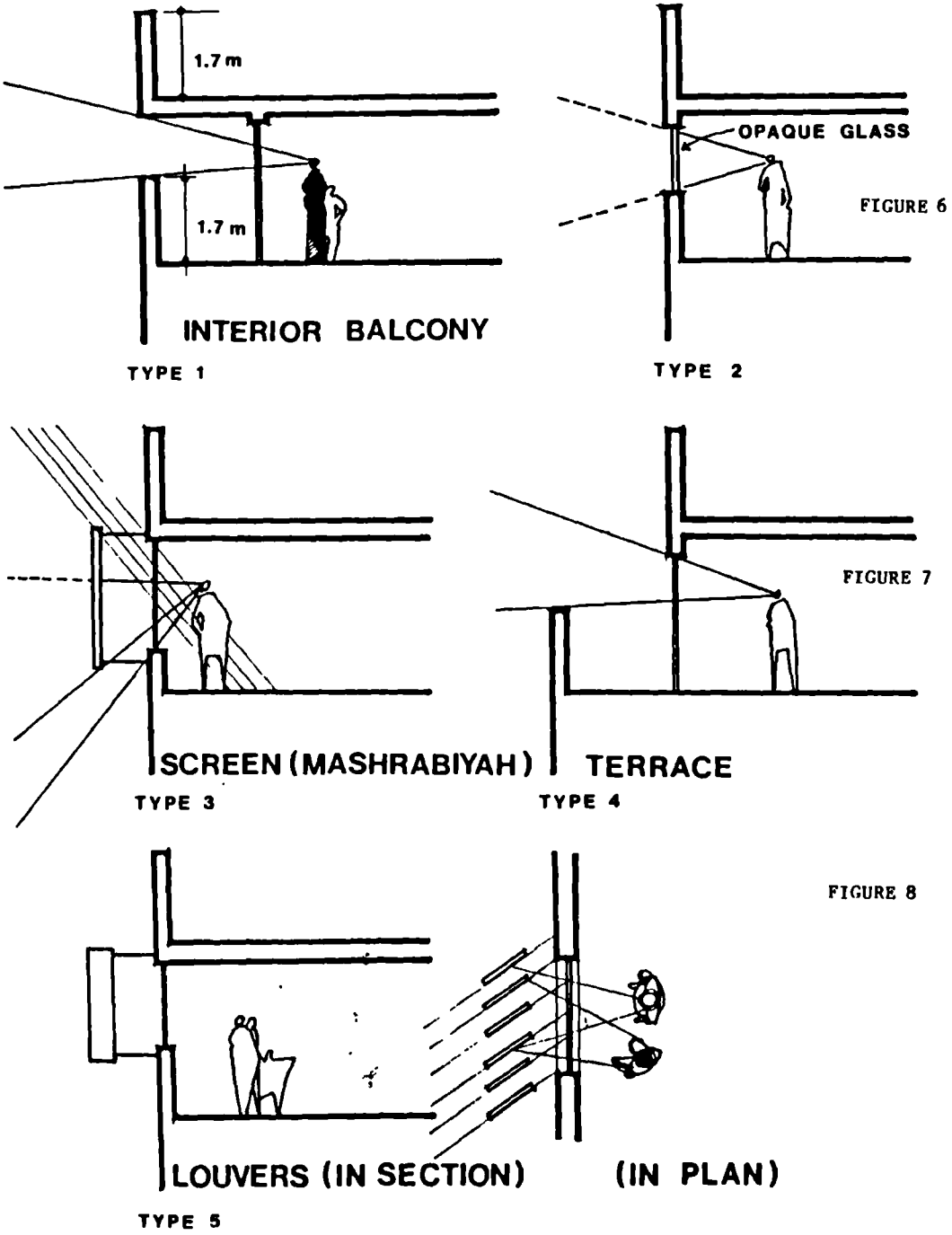

Figure 2-13: If the formula is not met, then these windows should use screens to prevent overlooking onto neighbours' yards, as proposed by SCET International (1981).

1- The controls did not indicate the party that should comply with these controls. Was it the new house or all houses? If just the new houses, which ones: the two or three adjacent ones or all the nearby houses that could overlook the house? All these points are important matters and were not clearly identified or stated.

2- If these regulations were applied to the new houses only, then to implement these controls, all the openings of the new house had to be examined. In order for the municipal officer to make precise examinations and judgements, the exact measurements of the fence, first floor level, yards and windows of both the existing and the proposed houses had to be known first. This was a very difficult and time consuming job, which required a significantly longer time and larger number of skilled municipal employees than was predicted. If the time and the employees required were not available to the municipality, then these controls could not be carried out, or else a much lesser number of house development applications was going to be dealt with.

3- The proposed overlooking controls were concerned with overlooking from first floor windows onto neighbours' yards only. The controls did not consider the overlooking taking place from rooftops or from the upper floors of medium and high-rise buildings, that might be close enough to cause overlooking violation to villas. Also, no standard was specified for parapet wall heights.

All of the above points made it impossible for the municipality to implement these overlooking controls. In particular, no training courses were provided for the municipal officers responsible for carrying out these controls. In addition, no specific or more detailed laws or regulations were made to cover the gaps or unspecified aspects of these controls. Lastly, and most crucially, the required number of skilled staff needed to implement these controls was never supplied. Thus, the inevitable outcome of this was the neglect of these controls by the municipality.

2-5-3-2 Al-Erija District Plan (R121)

A special planning regulations ordinance was proposed for the district of al-Erija in Riyadh (or Oreiga as the plan called it). The concept of this plan was to change the house form from the villa, detached house, to the attached house, from the house sides. The plan required a minimum 4 metres setback from the front and 5 metres from the rear, and mandatory no setback from both sides, see Figure 2-14 for further details.

Although, the plan did not state the aim and reasons for adopting such a house form and its planning regulations, it was most likely related to the privacy issue. Another possible reason was to reduce the surface of the house that was under direct exposure from the sun's heat, in order to reduce the heat transfer to the house during the hot summer, and thus to reduce the electricity and equipment involved in air conditioning.

The new house form reduced the overlooking possibilities of the houses' yards, as there were only two yards in this form of house, the front yard was overlooked mostly by the two side neighbouring houses, and to a lesser degree, the front neighbour. Regarding the backyard, it is hard to see how overlooking was reduced compared to the villa form, particularly because the back and side yards' neighbours could easily overlook onto these yards from first floor windows, see Figure 2-15. The analysis of the field survey covered some of these aspects and are discussed in the second part of this research, as well as finding answers to the question of overlooking conditions in this district and the residents' reactions to and opinions of this house form.

ZONING DISTRICT:	PATTERN:	PRINCIPAL USES:
R 121	ATTACHED	RESIDENTIAL SINGLE FAMILY MEDIUM DENSITY

SPECIAL PROVISIONS

LOT AND BUILDING HEIGHT

AREA	(MIN.)	400 sq.m.
WIDTH	(MIN.)	20 m.
DEPTH	(MIN.)	20 m.
GROUND COVERAGE	(MAX.)	60%
FLOOR AREA RATIO	(MAX.)	1.2
NO. OF FLOORS	(MAX.)	G+1

SETBACKS

Front : 4 m. (min.)

Side : without setbacks

Rear : 5 m. (min.)

GENERAL PROVISIONS

PERMITTED USES

Residential

PARKING

REMARKS

- The ground floor level should not exceed 50 cm above curb level.
- Side and rear facades should be coated.

ILLUSTRATIVE EXAMPLE

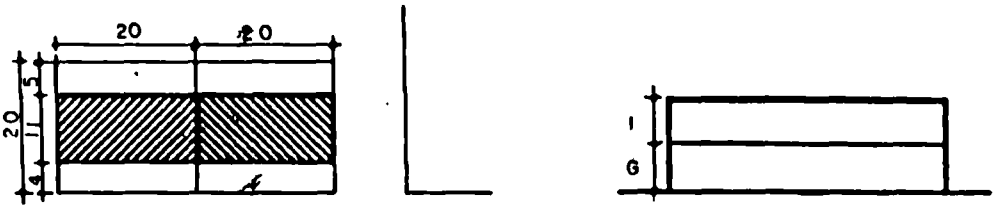

Figure 2-14: Planning regulations for residential zones of R121, adopted in al-Erija in Riyadh, as proposed by SCET International (1981).

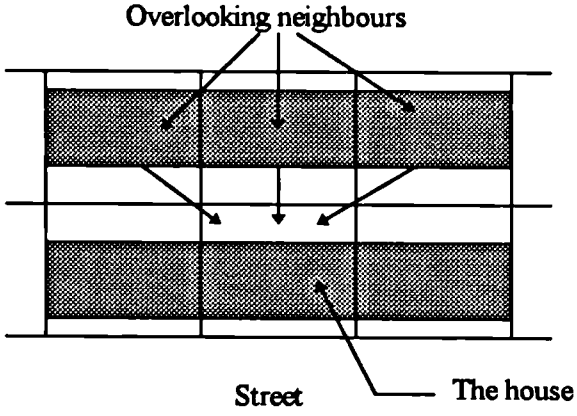

Figure 2-15: A plan for a group of houses in al-Erija showing the overlooking of the back neighbours onto the house backyard.

This plan was adopted and implemented in al-Erija suburb, from the early 1400s/1980s, and it was stated that al-Erija municipality was able to supervise and maintain this plan very well. However, it seemed that the residents were not satisfied with this planning regulations policy, and they tried hard to change this policy by voicing their opinions to the responsible authority.

In the end, the municipality listened to their complaints and recently modified these regulations. Under the modifications the building was no longer without setback from both sides as originally recommended, but instead there was a compulsory 1 metre minimum setback. The results of building the new houses with side setbacks was the villa form. This meant that the villa form and its setback regulations was adopted in practice also in al-Erija, just as most newly-built houses were adopting the villa form.

There are many possible reasons for the residents' dissatisfaction with the attached house form. Some of them could be for security reasons, other reasons may be in order to have a corridor linking both the front and rear yards, or to get rid of the voice and sound transfer through the walls of adjacent dwellings, or simply because the residents wanted the villa form for the sake of living in a villa. All of these reasons have been included in the field survey carried out in this suburb, and the findings are discussed in the second part of this study.

2- 6 Planning Regulations in Other Arab Countries

Looking at and investigating the experience of other Arab countries, with regard to planning regulations ordinances for low-density single family houses, might assist the understanding of how these plans treated the problem of privacy and house form, particularly, as the inhabitants of the two other Arab countries studied share many socio-cultural values with Saudi Arabians. Also, both Jordan and Oman, have borders with Saudi Arabia. All of the three countries' populations are Arab-Muslims, who speak the same language and believe in the same religion. In the following two sections, the planning regulations applied in the low-density house in Amman (Jordan) and Muscat (Oman) municipalities are analysed and discussed.

2-6-1 Planning Regulations in Jordan

The plan under investigation here was the "The Building and Planning Act" for Amman city (*Nizam al-Abniyah wa al-Tanzim fi Madint Amman*), which was issued by the Amman Municipality (*Amant Amman*) in 1979. This plan contained the specified planning regulations for all the different types of land-use development. For the low-density single family dwellings, which is the focus of this research, there were four categories, A, B, C and D, according to the size of the lot. Each of these categories had different setbacks and site coverage regulations, as can be seen in Table 2-2.

The concept of classifying these residential zones according to lot size, and specifying different planning regulations for each zone, indicated a greater flexibility in of applying these regulations. For example, the increase of the percentage of the area that can be built upon, with the decrease in the lot area, provided more space for building in the small size lots where indoor space was

needed the most, as compared to large lots of 750 - 1000 sq. m. The same remarks can be made regarding the decrease in setback requirements with the decrease in lot area.

Table 2-2: The setback, site coverage and height requirements of the planning regulations for residential houses in Amman, Jordan.

Residential Zone	Min. lot area (m2)	Min. lot front (m)	Setback (min.)			Site Co-verage	Building height (storeys)
			Front	Side	Rear		
A	1000	25	5	5	7	35%	4
B	750	18	4	4	6	42%	4
C	500	15	4	3	4	48%	4
D	300	13	3	2.5	2.5	52%	4

Source: Municipality of Amman, Building and Planning Act, in Amman Municipality Regulations and Laws, Legal Department, Second Edition, 1995.

Furthermore, the planning regulations adopted in this plan imposed and produced only one house form, that is the detached or villa form. As the setback requirements are compulsory from all sides, and the maximum allowable number of floors is 4, the regulations would lead to a tall version of the detached or villa form.

However, the plan does not cite or discuss the problem of overlooking or privacy violation between these houses. There was no mention of how to treat openings and fence heights or materials in the plan. Nor was there a reference which indicated whether privacy violation was undesirable or unimportant to the residents of these houses. This might have been left to the local municipalities to deal with, or simply left to individual opinions and perception of privacy and the suitable method preferred to overcome the effects of privacy violation, if the residents ever cared about it. Nevertheless, it appears that the problem of privacy violation was not as important as in the villas of Saudi Arabia, possibly because

the Jordanians were generally less conservative than the Saudi Arabians, or due to the influence of their former colonisers, the British, as well as the presence of Christian Jordanians (accounting for approximately 5-8% of the total population).

2-6-2 Planning Regulations in Oman

The plan under investigation was called "Building Regulation for Muscat, Local Order No. 23/92" produced by the Muscat Municipality, the capital of Oman, and issued in 1992. Although, the plan was entitled "Building Regulations", it covered planning as well as building regulations. This plan was issued as a guidance for the local municipalities in the capital, as it only dealt with definitions of some planning and building terms, and explained how to calculate the site coverage or floor area ratio. The plan did not set or indicate specific measurements for planning regulations, such as building height, setback or site coverage, but left them to the local municipalities opinions.

Sometimes, the plan only stated a general guideline for these planning regulations. For example, regarding setback, the plan indicated that setback requirements for residential lots from sides were only compulsory when the house had openings on that side. If there was a window on the house side, then there was a minimum setback of 1.5 metres for single floor houses and 3 metres for houses with more than one floor. The plan did not mention any detailed requirements for front or rear setback.

Planning regulations are mixed with building regulations. Sometimes they even appeared to be disorganised and not structured clearly. For example, the plan left some important regulations unspecified, and at the same time gave very specific measurements and specifications for building regulations, such as the minimum width and height of main bedroom and bathroom doors, or the different sizes and gradients of the water supply pipes in the building.

As far as privacy was concerned, unlike the plan for Amman, this plan specified and identified the problem quite clearly. In Article 15, the plan stated:

> "In order to maintain privacy in residential buildings where windows openings of bedrooms are opposite the windows, of a neighbouring building, with a maximum distance of 10 metres in between, a screen, should be provided on to the windows opening of both buildings to conceal or diminish the chance to see from outside." [49]

Then, the plan specified the types of acceptable screens, and the specifications and materials. However, the discussion of the privacy issue in this plan indicated that the issue was considered to be important, unlike in the Amman plan. How privacy was perceived and its level of importance in the minds of Omani citizens and the authorities is another issue this research will not deal with. The main point here is that the problem of privacy or overlooking violation between houses was recognised and treated in this planning regulations ordinance.

2- 7 Conclusion

Planning regulations are implementation mechanisms of the land-use and structured plan of the city or district. The earliest examples of planning regulations go back to the end of the 18th century, and come from the United States and the United Kingdom. However the concept of modern planning regulations ordinances, as known and practised today, was only developed and clearly defined after the First World War.

These planning regulations reached their final form in Western countries, as a result of the aims of land-use plans, and in accordance with their society's needs and values, and the legal and political system practised in that region or city. Even within the same country, the practice, aim and form of planning regulations ordinances frequently differed, according to the regional or local

conditions. Another important point is that planning practice in Western countries usually involved significant participation by the public.

The traditional built environment in the old cities of Saudi Arabia knew and practised some regulations and principles that influenced and controlled the process of city-building. These principles developed over hundreds of years, and were mainly from the Islamic *Sharia'h* and the common practice or *Urf* of the local inhabitants.

During the rapid development that took place in Saudi Arabia, in the second half of this century, these traditional planning principles and practice were replaced by state and centralised municipal authorities and imported planning regulations. The introduction of these imported regulations, as well as the forms and concepts they imposed on the city's built environment and on the public, resulted in major cultural conflicts and dissatisfaction among the inhabitants. This dissatisfaction can easily be observed by the plastic and steel sheets the residents added to the top of their house fences, in order to protect the house yards from neighbours' overlooking. Also, most of the residents with overlooking yards restrained from using these yards for family activities.

The municipal authorities realised this problem, and several attempts were included in the latest generation of master plans around the country, in order to solve or at least reduce this problem. Although these attempts show awareness of the problem of overlooking violations, it seems that none of these attempts have actually succeeded.

For example, the new setback policy proposed and adopted in the al-Erija district of Riyadh was later modified to the older type of setback requirements from all sides, that is from front and rear only. The main reason for changing this policy was the residents themselves. It appeared that the residents of this district were not satisfied with this policy and thus dissatisfied with the house form

resulting from it. The dissatisfaction of these residents is very interesting to analyse, in order to know if this dissatisfaction is because the residents prefer to live in detached houses, villas, or because the setback requirements and the new house form did not present the solution to the overlooking problem that they were supposed to provide. All these matters are discussed and analysed in Part One of this study, as well as in the field survey in Part Two.

Another attempt was introduced in Riyadh by the same master plan, regarding the overlooking from windows of new houses onto the existing neighbouring house yards. Although this attempt illustrated more understanding of the problem, it also failed, due either to a misunderstanding of the resources and capabilities of the municipalities which were supposed to implement the plan, or to insufficient preparations to carry out this policy efficiently.

However, regardless of the end result of these two attempts in the Riyadh master plan to address this problem, it is clear now that the problem of overlooking or privacy violation is well-known to municipalities, as well as to the general public. However, other attempts are definitely going to be introduced into the planning regulations, to provide a solution to this problem. At this stage, it is hoped that the analysis, findings and recommendations of this research can contribute to finding a successful and practical solution to the problem of overlooking violation in the Saudi Arabian house.

Chapter 2 Notes

[1]. Roberts, Thomas H., "Land Use Planning", in Anthony Catanese and James Snyder, Urban Planning, McGraw-Hill Book, New York, Second Edition 1988. p. 222.

[2]. Department of Planning, Residential Development Controls 1: One and Two-Storey Low-Density Development, New South Wales Department of Planning, Sydney, Australia, 1990a. p. v.

[3]. Babcock, Richard F., The Zoning Game; Municipal Practices and Policies, The University of Wisconsin Press, Madison, 1966. p. 125

[4]. According to Seidel (1978), the early zoning regulations were largely permissive by today's standards. The role of the regulatory mechanism was considerably negative in that it sought merely to prevent inappropriate development, to keep out less desirable uses. The early zoning process was conceived, not so much as a procedure to shape future growth, but as a tool to maintain established neighbourhoods. Seidel summarised the recent historical trend of zoning as having "become more affirmative in nature, more detailed and more refined in order to further planning objectives. They had also become increasingly restrictive. Finally, their administration had become more sophisticated and discretionary. .... The zoning ordinance was being used to protect the fiscal and/or social sanctity of the community. It was being used to protect the moral values of the community, as for example to restrict pornography". Seidel, Stephen R. Housing Costs & Government Regulations: Confronting the Regulatory Maze, The Centre for Urban Policy Research, New Jersey, 1978. p. 162

[5]. Dukeminier, Jesse, "Boards of Adjustment: The Problem Re-examined", Zoning Digest, 1962, p. 361. Cited in Babcock, Richard F., The Zoning Game; Municipal Practices and Policies, The University of Wisconsin Press, Madison, 1966. p. 4-5

[6]. Bair, Frederick H., "Is Zoning a Mistake?", Zoning Digest. Cited in Babcock, Richard F., The Zoning Game; Municipal Practices and Policies, The University of Wisconsin Press, Madison, 1966. p. 249.

[7]. Cresswell, Roy W., "Physical Planning", in Michael Bruton (Ed.), The Spirit and Purpose of Planning, Hutchinson, London, 1984, Second edition. p. 97.

[8]. Roberts, 1988. p. 211.

[9]. A very interesting method was explained by Roberts (1988). He indicated that one of the more established variations in traditional development controls was the 'planned unit development' (PUD), by which developers were permitted to vary the use, density, and dimensional requirements that would otherwise apply to their parcels of land as long as they stayed within certain overall parameters and submitted an acceptable site plan. Moreover, Babcock (1973) valued and favoured the administration of the PUD ordinance for it has greater flexibility than the traditional zoning ordinance. He indicated that the approval of a development did not lie with the building inspector issuing a permit

pursuant to precise and preordained standards. Rather, the developer submitted site plans that were subject to administrative or legislative approval, or both. Preliminary approval was based on one set of plans and final approval of a more detailed set.

[10]. Simon Eisner and Arthur Gallion, in their book **The Urban Pattern; City Planning and Design**, 1983 suggested another aim and function of floor space ratio. He stated that this controlling device was used with other regulations (even though he did not specify which regulations, they are most likely to be setback, height and site coverage limits) to control the bulk of buildings on the land. The use of floor space ratio with these regulations, in Eisner's opinion, will produce the required balance between enclosed floor space occupied by people and adequate ground space for vehicles and living things, be they humans, animals or plants.

[11]. The planning regulations plans in Western countries generally depended on the floor space ratio device for controlling population densities in the residential zones rather than the site coverage limits, which were more often used in high-density residential zones and commercial districts. One of the reasons for this was due to the precision of the floor space ratio device in defining the exact indoor floor area of the dwelling.
The second reason was that usually the single family lot area was larger than the floor area of the dwelling. Thus, the site coverage limit will determine the size of the lot area that is allowed to be built on, without determining the ultimate or the amount of floor area that could be achieved in the dwelling design. Therefore, the use of the site coverage as a limiting device did not predict sufficiently the average floor area of the dwellings that were going to be built, and consequently determined the population density of that district. The most likely end result of using only the site coverage device was that the actual floor area in the dwelling would be more than the one anticipated or planned for (because people usually tend to make the most of their property market and space value), hence the population density in this district was higher than the one planned for. If this happened, it would create overdevelopment urban problems such as an increase in traffic volume and shortage in the supply of utilities and community services in that district.

[12]. Eisner and Gallion, 1983. p. 311.

[13]. Ibid., p. 311.

[14]. Ibid., p. 311.

[15]. Some planning regulations ordinances required a specific regulation for the mass and size of a building, which was mostly called a "bulk regulation". These bulk regulations included several regulations categories , such as building height, setback and site coverage limits. According to Leary (1968), the aims of these regulations directly addressed the qualities that collectively contributed towards "liveability". They attempted to control the population density in various areas; to ensure adequate light, air, and privacy; to afford safe play space for children and recreation space for older persons; to reduce fire hazards, and in general to maintain a healthy and safe environment. When all of these specifications were considered together, they constituted an invisible envelope over each lot, through which the building could not protrude, but which it might fill completely.

[16]. Department of Planning, 1990a. p. 3.

[17]. Robert Leary, in his paper Principles and Practice of Urban Planning, 1968, also discussed the corner lots, which presented a problem that needed a specific arrangement of setback regulations. One of these problems is to guarantee visibility for motorists. In order to solve this problem, a set of regulations was formulated to prohibit any structure or plant higher than a certain specified height above the curb level within a distance of 20 to 40 feet from a street intersection. Another problem referred to blocks where dwellings face each of two intersecting streets. In such a situation the "side-yard" regulation for the corner lot was commonly expanded to a distance more closely approximating to the front yard regulation of the neighbouring lot.

[18]. In modern planning regulations, as Leary (1968) explained, some ordinances employing the "bulk" device did not state or specify a maximum height in feet or an allowable number of storeys. By recognising that the purpose of height limitation is to ensure light and air to neighbours of the dwelling, these ordinances, instead, described a plan starting at a particular height above the ground level at the lot line and sloping upward over the lot at a certain angle. Hence, a pyramidal "tent" or an "envelope" was described, and the developer could erect his dwelling to any height and shape that fitted into the "tent" and did not penetrate it. The mass volume and shape of this "tent" allowed the sun light and air to reach the adjoining dwellings without being obstructed by the building filling that "tent".

[19]. Leichhardt Municipal Council, Development Control Plan No.1; Residential Development, Leichhardt Council, Sydney, Australia, 1988. p. 16.

[20]. Von Grunebaum, Islam: Essays in the Nature and Growth of a Cultural Tradition, George Banta Publishing Co., Menasha, 1955. pp. 142-143

[21]. Ibid., p. 142

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3-

PRIVACY

3-1 Introduction

This chapter investigates privacy from different perspectives. It involves the definition of privacy in its broader meanings, as well as some specific ones. Privacy perception is also discussed and analysed from different cultural perspectives according to people's socio-cultural backgrounds. Furthermore, factors affecting the perception of privacy and the control mechanisms of privacy are discussed as well and identified.

The aims of this chapter are: firstly, to cover and discuss the different definitions and meanings of privacy; secondly, to investigate how privacy is perceived in traditional and contemporary Saudi Arabian cultures, as well as other cultures with particular reference to Western culture, and how Western culture has influenced the contemporary lifestyle of Saudi Arabians; and thirdly to identify the factors affecting the definition and perception of privacy.

3-2 What is Privacy

The term "Privacy" has very broad meanings, which are covered and used by a large number of scientific disciplines. Privacy, for example, is used in terms of protecting individual's rights to prevent other people from gaining access to personal medical files, or in terms of protecting personal data stored on computers from being open to the public, or in terms of having your own private space where you can retreat without intrusion from others.

In the study of privacy and man-environment studies we find that different disciplines have different concerns. The social psychologist is largely concerned with studying the process of withdrawal from interaction or of control of

interaction and involvement with others. The environmental psychologist is interested in the relationship between privacy-oriented behaviour and the physical environment, for privacy can be controlled by manipulating either the environment or one's position in the environment. To the planner and designer, questions of privacy are involved in decisions about visual and auditory separation between the different sections and elements within the home, between the home and the street, and between dwelling units.

According to Vaziritabar (1990), discussion of privacy was traditionally conducted in the realms of political sciences, the law, and philosophy. He explained that only recently has privacy been defined as a concept and its nature conceptualised. Previously, the nature of privacy was more speculative than empirical and offered little or no foundation in practical investigation. Vaziritabar claimed that in sociological and associated research, apart from a few exceptions, privacy had rarely been treated as the main theme or focus of a study. More often it had emerged in relation to other factors, or had been treated under other terms or headings which depended on how privacy was defined or what aspect of it was examined.

Nevertheless, the majority of writers gave a general operational definition of privacy as "control over access"1. Some other writers defined privacy specifically in terms of people's right or ability to decide for themselves the circumstances under which, and the extent to which, information about themselves is communicated2.

3-2-1 Privacy in Man-Environment Studies

Pamir, in his Ph.D. thesis **Privacy and the use of space in adolescence**3, stated that there were three distinguishable streams of man-environment studies that dealt with the phenomenon of privacy:

> "One group of investigators deals directly with the subject. A second group takes account of privacy with other properties or variables that are being studied jointly or under some separate super ordinate construct. Finally studies of relevant social processes, such as affiliation, reaction to threats and intrusions, conformity and compliance etc. reveal properties of man-environment interaction that can readily be interpreted and used theoretically in terms of privacy."[4]

He classified the studies of privacy into three distinct levels of discourse. At one level, there was the social construct of privacy such as the 'right to privacy', which was a super ordinate construct. Secondly, there were areas of possible privacy. Thirdly, there were the ways in which the individual construed privacy, including its achievement and defence, that could be investigated.

In accordance with these perspectives of privacy, Young (1978) examined the intriguing and emotive subject of privacy. He pointed out that:

> "the right to privacy is inherent in the right to liberty, but the life of the individual in all societies has to strike a balance between freedom and discipline. It is inevitable that there must be some measure of restraint on the activities of members of a community in order to achieve that balance. Whereas some degree of control is acceptable, it is the increasing extent of the invasion of individual privacy that is causing grave concern in the minds of many people".[5]

The writer narrated how some writers define privacy. For example, Westin[6], saw privacy as "the voluntary and temporary withdrawal of a person from the general society through physical or psychological means, either in a state of solitude or small-group intimacy or, when among larger groups, in a condition of anonymity or reserve". While Brandeis[7] described privacy as "the right to be let alone-the most comprehensive of rights, and the right most valued by civilised man". The "Justice Committee"[8] viewed privacy as possessing a "central area" of certain matters which by general consent should be preserved from intrusion by others, and a surrounding "grey area" about which views were more flexible.

The first two definitions of Westin and Brandeis were concerned mostly with psychological and legal matters of privacy intrusions. These two definitions were not applicable to the problem of visual privacy of Saudi Arabian's dwellings or villas. Westin described privacy as a temporary situation, which was not the

case with the constant violation of privacy in Saudi Arabian's houses. Brandeis's definition is largely influenced by the desire to be let alone, while in Saudi Arabian's dwellings the intrusion was forced upon residents by overlooking adjoining neighbours.

The "Justice" Committee's definition was closer to the situation of privacy in Saudi Arabia, because it recognised a central area for certain matters that should be preserved from other's intrusion. This definition was still, however, a very wide and theoretical definition, and could include a large number of variables, that would make the use of this unspecified definition impractical.

Young described the desire for privacy as "a natural one and the inclination to pursue it followed automatically. This had always been the case, the more so in modern times when life had become increasingly more complicated, demanding and pressing, leading to a greater demand for withdrawal and protection from the complications and pressures of today's world"9. Now it was recognised that "the individual not only had a desire, but an absolute need for a shield of privacy behind which only he could retreat, and that this need should have been translated into a right, regulated though it may have been by the law or custom of the time."10

In this description of privacy needs, Young assumed that in modern times the need for privacy has been increasing. This assumption was not accompanied or proved by a comparative study or any statistical evidences, which decreased the credibility of this assumption and put some doubts upon the results built on it. Therefore, it was not possible to see whether this assumption was applicable to the Saudi Arabian society.

Another interesting definition of privacy was presented in Ingham's paper, "Privacy and Psychology" (1978). After he had examined and analysed the other writers' and dictionaries' definitions of privacy, he proposed that privacy was

"concerned with the claim that individuals or groups had to determine for themselves how, when and to what extent certain aspects of their behaviour was determined by others"11. Behaviour in this context was not specified and was generously defined. In his definition, Ingham incorporated most of the variables that defined privacy: individuals or people, time, behaviour and others (observers).

3-2-2 Privacy in Space

The only missing variable in this definition was place. If place had been added to Ingham's variables, his definition would have been a close and appropriate starting point for forming a definition of privacy in the case of Saudi Arabian's houses or villas. Nevertheless, this definition formed a very good ground and base, whereupon other more specific definitions, in terms of place, time and culture, could be formulated.

Another developed definition was given in Altman and Chemers's book **Culture and Environment** (1980), which gave the definition of privacy another dimension. They defined privacy as:

> "Selective control of access to the self. Selective control means that people (individuals or groups) attempt to regulate their interaction and exchange with others or with aspects of the environment. That is, people try to control their openness or closedness to others, to be sometimes open and available to others and sometimes closed and unavailable[12].

This definition raised an important aspect of privacy, that is the boundaries of a person's privacy, both physically and psychologically. These boundaries were not static, neither a complete darkness nor light, rather they were a kind of mixture of darkness and light, openness and closedness.

Altman and Chemers added that this definition departed from some traditional ways of thinking by emphasising that privacy meant changing

boundary control, not merely "keeping out" others or shutting off stimulation. Privacy was a dynamic process whereby people vary in the degree to which they are accessible to others. Altman and Chemers' use of the term, therefore, covers the whole range from extreme openness to extreme closedness. The degree of this openness and closedness was, however, dependent on the variables that control privacy, such as age, sex, place, activity, culture, etc.

This degree or flexibility in openness and closedness was a very significant point, because it gave the definition of privacy two dimensions, to be open and closed at the same time. To be with and to be without interaction were not separate processes; they were part of the same phenomenon, "two sides of the same coin." Thus, one rarely attempted to avoid all contact with others beyond a limited period of time. And one rarely sought to have total, unending contact. Instead, one oscillated over time, sometimes seeking interaction with others and sometimes avoiding it.[13]

3-2-3 Privacy and Dwellings

People used a series of mechanisms at different times and in different patterns to implement a desired degree of contact with others. Sometimes things worked out successfully; that is to say the outcome or the achieved privacy level was equal to the desired privacy. But at other times one's level of contact was not optimal. Sometimes a person was "crowded" or in other words, his privacy was "violated", as occurred when achieved privacy was less than desired privacy-that is, one ended up having more interaction than one initially wanted and tried to achieve. Crowding or privacy violation occurred when the behavioural mechanisms of personal space, territory, and verbal and non-verbal behaviours were not used in a successful way to protect a person or group from undesired interaction. But sometimes privacy regulation overshot the mark, and a person or group received less contact than was desired , which was called by sociologists "social isolation".

One more definition of privacy was presented by Rapoport (1977), where he explained that if privacy was defined very broadly as "the control of unwanted interaction", then:

> ""unwanted", "interaction" and "control" are all variable and matters of definitions, so that there are differences in the tolerance and, indeed, preference of various interaction levels. With whom one interacts, when and under what conditions; what constitutes withdrawal, where both interaction and withdrawal occur all vary. The nature, placement and permeability of barriers also vary accordingly, as does the cycle of withdrawal and interaction which form a system; neither is comprehensible by itself."[14]

In Rapoport's view, unwanted interaction could be controlled through "rules" (manners, avoidance, hierarchies, etc.), "psychological means" (internal withdrawal, dreaming, drugs, depersonalisation etc.), "behavioural cues", structuring activities in "time" (so that particular individuals and groups do not meet), "spatial separation", and "physical devices" (walls, courts, doors, curtains, locks- architectural mechanisms which selectively control to filter information). In most cases, of course, multiple mechanisms are used but particular ones are stressed and they are combined in different ways.

Rapoport (1976), in another paper, signified the same point of Altman and Chemers (1980), that boundaries of a person's privacy are of openness and closedness manner. He related this point to the above privacy definition, by explaining that "each of these mechanisms and forms of interaction are related to different sense modalities, which operated in two directions - one did not want to see or be seen, to smell or be smelled, etc."15. They were also related to the context so that the same amount of aural information, for example, may be acceptable in one context in a given culture but not in another (in the same culture). All of this had clear implications for the study of man-environment interactions, analysing environments or designing them, relating them to lifestyle and to specific contexts.

Two years later, in 1978, in a paper titled "The Environment as an Enculturating Medium"16, Rapoport gave a more precise definition of privacy. This definition was particularly relevant when one was considering the question of visual privacy violation in Saudi Arabian houses. He defined privacy as a "set of mechanisms for controlling interaction".

One function of such a control mechanism was to include and exclude different individuals or groups (sex groups, age groups, non-kin groups etc.). This could occur under specified conditions of place, time and occasion or situation. He added that "the relationship between cognitive categories, privacy, roles, expected behaviour and its location in various settings and so on are all things which involved agreement and which were signalled by appropriate cues, i.e., there must be similar interpretation of cues and agreement about obeying them."17

This definition and its explanation is perceived as being one of the most succinct and comprehensive to be found today. It was, also, very close to the problem of privacy violation in Saudi Arabian houses. Rapoport listed all the variables that defined this privacy violation; the space, the relationship between the observed and the observer, the behaviour that had been observed, the time or occasion, and the agreement on the roles controlling privacy.

This definition was particularly applicable to the socio-cultural principles and values of the Islamic and the contemporary Saudi Arabian cultures that are investigated in the following sections of this chapter. Within the context of this area of investigation, the only possible shortcoming of Rapoport's definition of privacy lies in the differing degrees of privacy, with each degree being allocated its own degrees of importance. In Arab-Islamic culture, the degree of privacy differed according to the relationship between the observer and the person that was being observed. For example, if a brother violated the privacy of his wife's

sister it was much less serious than if a stranger violated her privacy, even though both the brother and the stranger are considered violators of that sister's privacy.

Therefore, the concluding point coming out of these definitions and their analysis is that privacy can be defined as "the protection (controlling mechanism) of the dwelling and its residents (individual or group) from being violated by other's undesired visual observation (interaction)". In this definition, all the possible variables are being covered. These are the space, the individual or group that is observing or being observed, the relationship between the observed and observer, the behaviour that is being observed, the time or occasion, and the agreement on the rules governing privacy.

3-3 Factors Affecting Perception of Privacy

Privacy is a variable item. It can not be determined or identified by itself as a single entity. Moreover, privacy is the outcome of the influence of various parties and involvers. Therefore, if privacy needs to be defined, it should be identified and analysed by its influential parties and involvers.

For example, cultural norms and customs, family culture and background, family structure and family size, status and role relationships within the family, life cycle stage, age, sex and privacy-orientation of family members, time structuring, etc., may all, in complex ways, relate to and influence privacy.

Rapoport (1969) explained that a wide range of factors had been, theoretically or empirically, shown to relate to privacy needs. He noted how variables were conceptions and definitions of privacy from culture to culture, while others, such as Proshansky, Ittelson and Rivlin (1970) indicated that there were also subcultural and micro cultural differences in relation to privacy. [18]

The result of Willis' (1963) study and survey showed that privacy requirements may vary also within cultures according to socio-economic grouping, lifestyle, family background and values, etc. She also, pointed out that the concept of privacy was relative not only to cultures and groups of people, but also to individual members of a community. Different individuals may have varying privacy requirements. Individual differences in relation to privacy had been found, in her study, to be related to sex and age, age-related experiences (life stage, family life cycle), past (history of the person) and present (living situation) experiences or circumstances, personality variables (introversion-extroversion), and mental health.

One of the most complex aspects of privacy concerns privacy from, or between, neighbours. Willis (1963) in her survey study of "Overlooking" explained that this aspect of privacy, more than any other aspect, was dependent upon the appropriateness of the relationship with others in social terms. In other words for most people privacy in relation to neighbours involved the establishment of the right relationship with them. She found out that the nature of this relationship could range from almost no involvement and high control over the relationship to varying degrees of involvement and intimacy with neighbours.

She also stated, regarding privacy between neighbours, that this social dimension of privacy from neighbours differed from, though it may have related to, its physical dimension, such as distance between dwellings. Nevertheless, the importance of the physical setting affecting the attainment of certain interaction outcomes and social ends should not be ignored or understated. Willis listed ten factors affecting this privacy. They were as follows:

1. Physical setting and social relationships
2. The individual
3. Social factors
4. Physical variables
5. Space arrangement of entrance doors
6. Street form
7. Proximity
8. Neighbourhood satisfaction
9. Neighbourhood interaction
10. Habitat selection

Hill (1970) conducted an experiment to investigate the opposing aspects of vision-out (he called it visibility) and vision-in (he called it privacy) among some residents of houses in Scotland. The results showed that people's visual privacy needs varied systematically both with viewing conditions and with individual personality factors. The analysis also showed that:

> "by far the largest source of variance was due to the room function factor. When the data is further partitioned it reveals the expected results; namely that the privacy standards in the bedroom were much greater than those in the kitchen-dining room, and also that observers showed greater desire for outward vision with the landscape-type view than with a nearby pedestrian walk."[19]

However, despite these interesting side issues arising out of the experiment, Hill pointed out that its main value had been in demonstrating that the aspects of outward vision and real visual privacy were opposing requirements of the single value function, visibility. He added that this optimisation technique was capable of showing differences in visual privacy requirements not only according to the room function and outside view conditions, but also in terms of the occupant's personality.

3- 4 Privacy Controls

As was stated before, if privacy is defined in general terms as "the ability to control unwanted interaction", it will also involve environmental information flows. Adam (1990) explained that privacy involved controlling all information about people and needed a set of defences. Ideal environments seem to provide the possibility of controlling such information, regardless of level, be it environmental, social etc., whilst allowing sociability and sensory information when desired. Different mechanisms for privacy (i.e., controllers) also help to control excessive unwanted interaction and social communication. Moreover, they enable unavoidable unwanted interaction to be structured.

Rapoport (1980) added that the control of interaction and information flows (i.e. privacy) occurred through many major mechanisms to reduce stress. These levels and the ways of control used to reach them, need to be understood in order to understand and organise, structure and design urban forms. He clarified that there was an interplay of various ways of interacting, withdrawal and community, with a preferred level in each. Desired levels were controlled by selecting contacts and relationships.

In this sense, Rapoport stated that there are five principal devices used to control unwanted interaction in human settlements. These defence mechanisms are as follows:

3-4-1 Rules

This is a specific cultural device that controls the appropriate amounts of information, habits and ways of controlling, reducing or increasing interaction and information. Religion, norms, and unwritten rules about the relationship of proximity and neighbouring rights and obligations, use of space for various activities, proximal rules, sex roles and behaviour, language and many others are examples of these cultural rules or devices. Some of these have environmental indicators, such as territorial and domain divisions, and others have time indicators.

3-4-2 Psychological Means:

A common defence against overload is to ignore the physical and social environments. With large numbers per unit area, the number of people known by name drops and anonymity increases as a defence mechanism. Other forms are withdrawal, "turning off", dreaming, drugs, depersonalisation etc. Psychological means are the last defensive device and retreated to only after all controlling mechanisms fail to cope with interaction and information overload.

3-4-3 Temporal Means:

People usually control interaction and information flows through structuring activities in time so that particular individuals and groups do not meet. Time rules and time allocation also relate to space use and activities through jurisdiction, so that activity systems in urban areas are intimately related to temporal rules. Such rules can sometimes substitute for spatial and physical defences but can also cause problems in heterogeneous environments.

3-4-4 Spatial Separation and Distance:

Among animals and people distance and communication are related. Fixed and recognised relationships in space are a common defence against conflict. Once boundaries are fixed, formalised and predictable movement follows. The control of space is related to territory and the rules which go with it. Territory is a particular area (or areas) which is owned and defended whether physically or through rules and symbols which identify an area as belonging to an individual or group.

One way of controlling territory, i.e., controlling information and interaction, is through the use of space and distance among houses and groups with different areas having different uses and status. In modern cities this is represented in the suburban order. This is also clear in colonial situations where their pattern was one of separation stressing physical and social distance among various groups involved. Indian cities of the British colonial period are a good example of this, where environmental differences were used quite clearly to stress and ensure social and ethnic segregation, see Figure 3-1.

3-4-5 Physical Barriers:

Patterning of the built environment is a way of reducing environmental information overload. The ordering of space in buildings is really about ordering the relationship between people. Space organisation and mass: the "inside-out city", the use of walls, courtyards and clear and strong transitions is one way of expressing domains and to filter information and control unwanted social interaction, see Figure 3-2.

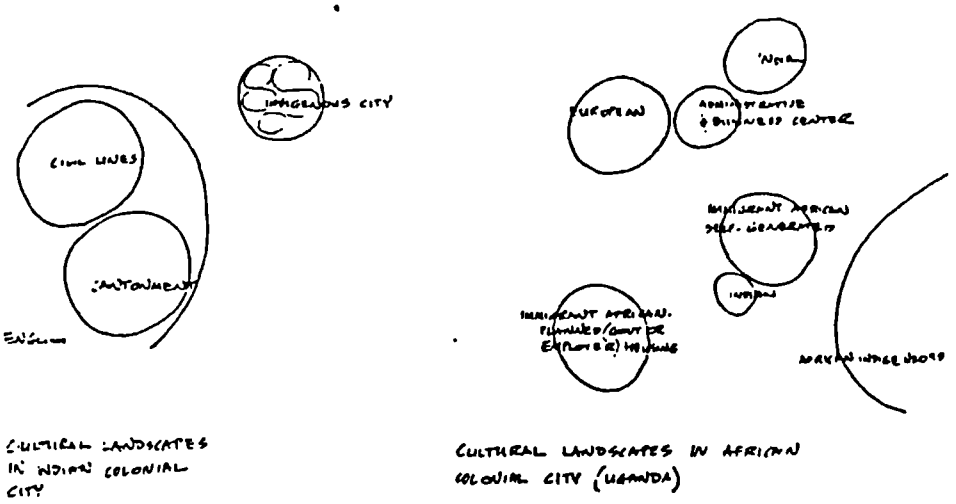

Figure 3-1: The manifestation of spatial separation and distance in Indian and African Colonial cities (after Rapoport (1980)).

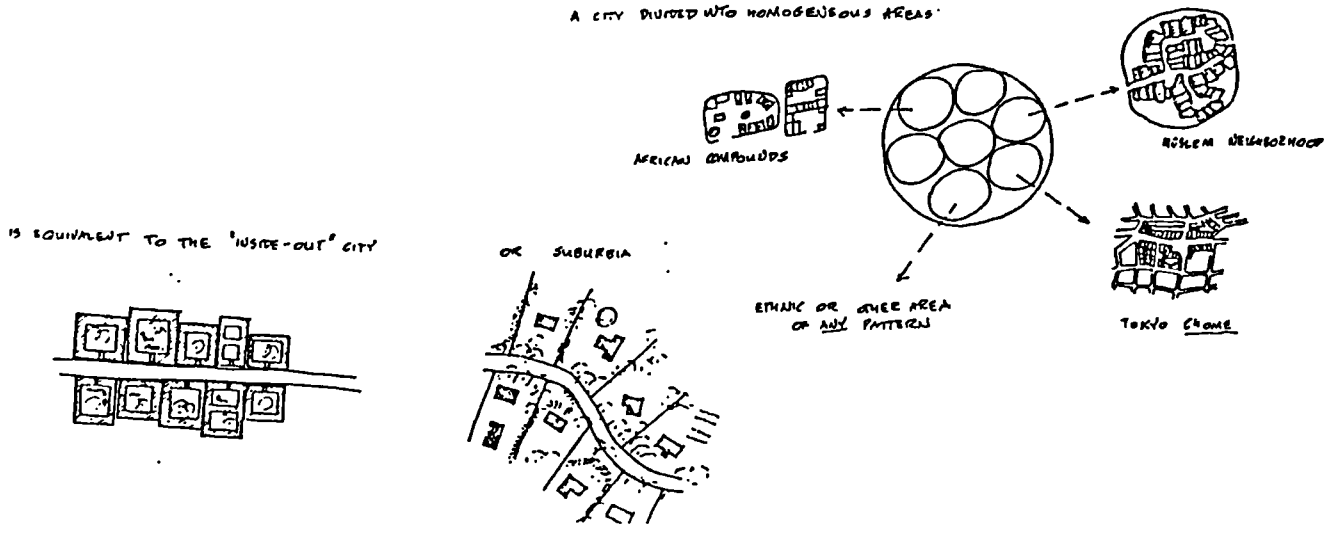

Figure 3-2: The use of physical barriers, e.g. space organisation and mass, of walls, courtyards and clear strong transition, is one way of expressing domains and to filter information and control unwanted social interaction (after Rapoport (1980)).

3-5 Culture and Privacy

The need for privacy is a socially created need. Without society there would be no need for privacy. Since societies differ, the desire or need for privacy will vary historically, from one society to another, and among different groups in the same society. Therefore, it is not the investigator's definition of privacy and private rights that matters in this case; it is what members of that particular society have felt about these issues, and what they have done about them - if they have been concerned about them at all.

In this sense, the definition of privacy depends on how the society itself defines and feels about it. Moore (1984) explained that the differentiation of definition of privacy in societies related strongly to the cultural values and principles of those societies. Thus, a definition of privacy in one society would not be the same as in another. He added that a definition of privacy should relate to a particular society, and should not be implemented or used in a different one, unless, of course, both of them carry the same cultural values and principles.

Vaziritabar (1990) substantiated Moore's point of view, regarding the relationship between privacy and culture, and explained that privacy appeared to be a culturally determined principle that influences where, when and how people dress, behave, interact and structure their time, social life and their physical environment. He also stated that "cultures seem to normatively define what is regarded as private and to what extent. Clothing and veiling as practised by Moslem women, for instance, are examples of normative aspects of privacy and its cultural practices"20.

This point of view was shared by many other writers. For example Rapoport (1969) and Altman (1977) saw privacy as a basic human need that had different behavioural definitions in many cultures, which also differed in terms of control mechanisms used to regulate desired levels of privacy in these cultures. They confirmed privacy as a "universal process that involves culturally significant regulatory mechanisms".21

3-5-1 Perception of Privacy in Different Cultures

Altman and Chemers (1980) regarded the process of privacy regulation as so central to human functioning, that it was hypothesised to be present in all cultures. In their view, all cultures had evolved behavioural mechanisms that permitted people to regulate their interaction with others. What differed among cultures, according to this way of thinking, was the types of mechanisms that were available to people, and not their presence or absence. They pointed out that:

> "To put all this in a nutshell, we hypothesise that *all* cultures have mechanisms that permit their members to regulate privacy. Some cultures emphasise one set of mechanisms, whereas other cultures emphasis another set. What differs among cultures is *how* they regulate privacy, not whether or not they a basic capability for self/other boundary control."[22]

According to this hypothesis, then, it should be found that each type of culture has, available to its members, compensatory privacy-regulation mechanisms. To prove this proposition, the writers examined two opposed cultures: the first with apparently maximum social contact, Mehinacu (minimum privacy); the second with apparently minimum social contact, Balinese (maximum privacy).

> "*Mehinacu* (minimum privacy): a small tribal group in the jungles of central Brazil. On the face of it, the Mehinacu have little power to avoid contact with others. In one village, five houses were located around a small plaza, so that all residents who were outside could see and be seen by others as they moved about. In each building several families lived communally, sharing the general space, although each family had its own area for sleeping and eating. People could easily see and hear what was happening in other parts of the dwelling unit. Considering all these features of life among the Mehinacu, people seemed to have very little capability for closing themselves off from others.

> Anthropologists indicated that these people in fact did have a variety of means for regulating their openness/accessibility to others. For example, there was a maze of twisting and winding paths beyond the village, and there were a number of secret clearings that people used to avoid others. So, side by side, in a delicate sense, we see privacy mechanisms that the Mehinacu used to make themselves accessible and inaccessible to one another."[23]

> "*Balinese* (maximum privacy): At first glance people appear to have little accessibility to one another. Balinese families live in homes surrounded by high walls, entrance ways to the yards of houses are through narrow doorways that are often locked, and it is customary only for family and friends to enter house yards without invitation. On the face of it, this is an isolated, private existence. Yet there was a tremendous warmth, humour and openness among the Balinese, suggesting the presence of behavioural mechanisms to permit both accessibility and inaccessibility of people to one another."[24]

Altman and Chemers concluded from this comparison that the ability to regulate and control privacy was essential to people's well-being, vitality, and self-identity. Therefore, the capability of people to regulate privacy was a culturally universal, and what differed among cultures was the particular set of behavioural mechanisms used to regulate privacy. People in such relationships had ways of making themselves more or less accessible to each other.

3-5-2 Importance of Privacy

At this juncture, one could ask how much importance privacy has in a culture or society, and whether privacy takes precedence over social concerns in any society. Moore (1984) clarified that privacy cannot be the dominant value in any society. Man had to live in society, and social concerns had to take precedence. He provided an example of ancient societies to clarify his remarks. In both "Greece and ancient China the words for private and public existed, with the words for private conveying some hint of the antisocial in their meaning. Among the ancient Hebrews, before the monarchy, we find no distinctions between public and private"[25]. Thus all three civilisations displayed a feeling for the priority of social concerns, but this priority did not mean that *all* social concerns always took precedence.

According to Moore, the great civilising achievement in the concept of privacy had been its questioning of social concerns, that was mainly an achievement of Western Civilisation. Sadly, Moore did not discuss privacy in relation to Islamic civilisation and culture. Islamic culture makes a clear distinction between private and public, with a strong emphasis on the protection of individual privacy, as will be seen in the next section. However, Islamic culture gives priority to the social concerns of a community when an individual's concerns are going to be in conflict with the well-being of larger social concerns.

Moore raised the question of whether social concerns take precedence over individual concerns. As a first step in answering this question, Moore cited an extreme example, namely whether societies without privacy exist. In response to this, he said that at first glance the Siriono Indians in Bolivia, among whom all physiological activities can and do occur in the presence of other people, would tend to suggest a positive answer to this question. However, upon a closer examination, he qualified the answer by giving evidence of at least a desire for privacy. Lovers, he said, seek "assignations in secluded areas away from the camp."[26]

In the end, he concluded that since the Siriono constituted an extreme case, it seemed safe to regard a desire for privacy as a basic human trait. The case of the Siriono along with other very simple societies also suggested that privacy was minimal where technology and social organisation are minimal. The findings of Vaziritabar's (1990) study, confirmed Moore's very last statement. The study showed that as a result of changes in social structure and family organisation, a higher standard for privacy was desired, as can be seen later on in this section.

3-5-3 Privacy in the Built Environment

Culture, however, has an effect on and is affected by the physical environment. A number of sociologists and urban researchers, have observed and

discussed how privacy concepts and practices relating to the built environment, or to the house form in particular, can differ between diverse cultures. Bahammam (1992), for example, emphasised the significance of privacy in the function of a dwelling, and claimed that the need for privacy was one of the socio-cultural elements that had influenced housing design in almost every society.

Privacy, in Bahammam's opinion, had always been "one of the main functions of a dwelling, and the value placed on privacy again varies greatly from one society to another"[27]. People from different social and cultural backgrounds experienced and used their built environment differently, having many cultural differences in their attitude towards their spatial needs. He took the different attitudes towards privacy in these different societies as an example of these cultures' differences. In other words by looking at how privacy was treated in a dwelling design, and comparing it with another one of different culture, it was possible to see how these cultures differed. As Krissdottir and Simon (1977) put it, "it is in the handling of space within the shelter that these differences become apparent."[28]

Across cultures around the world, according to Esser and Greenbie (1978), the house was normally recognised as a private place, and its privacy was often considered as a necessity for family life in the house design. But the importance of privacy in the house also varied greatly from culture to culture. Rapoport (1982b), for instance, stated that some cultures recognised privacy within the house as less important than external privacy and privacy between dwellings, while other cultures appeared to do the opposite. Also, in some cultures, "houses are seen as a sacred place that are set apart, exclusive, not to be lightly invaded, and shut off from the profane world outside"[29]. Some social researchers, such as Willis (1963), Hill (1970) and Pamir (1978), confirmed that even in the same society, people tended to vary greatly in their privacy standards and the degree of importance they attached to them, according to their age, sex, income and other factors.

However, culture is not static. Even in the same region, people and society, cultural values tend to change over time. Consequently, people's perception of privacy will change along with these values. Rapoport (1976) pointed out that "cultures change and that to freeze them in space and time (even if that were possible) may be as wrong as to destroy them"[30]. The survey results of Vaziritabar (1990) supported this statement. In his survey of traditional houses and modern apartments in Teheran, Iran, he noted that:

> "There have been signs of the beginning of a transitional stage in the spectrum of socio-cultural evolution in Iran in which changing attitudes and social behaviour derived from the changes in the social structure and family organisation are leading to a desire for greater standards of privacy in general. Certain aspects of privacy have therefore been changing and growing in significance."[31]

The survey results indicated that culture-specific patterns of privacy have had a critical impact on the organisation as well as the use of space in Iranian housing. He claimed that there was some association between changes in attitudes towards privacy and modification of domestic organisation of space, as a result of changes in society and perception of privacy.[32] However, whilst society needed time to incorporate any changes, social changes required a slower pace than physical or other changes.

Finally, privacy is an obscure concept. Its conception and perception may differ over time and place. It may vary in different societies according to their way of life and world view, and in terms of their norms and beliefs. It may, also, differ over time where there is a shift in individual and societal values, resulting in new, different ideas, images and attitudes, including those referring to space and privacy. The desired degree of privacy may also differ between individuals, and from place to place within the same society. In conclusion, to each community in a given place or time, privacy may have a different meaning that has to be understood, rather than precisely defined.

The concept of privacy can be tackled more effectively if privacy is viewed and treated as a variable and a relative rather than an absolute concept. Looking at and comparing privacy between different cultures will be of a great help to this research to cover and comprehend differing kinds and degrees of privacy equally. This follows in the next four sections.

3- 6 Privacy in Islamic Culture

In Arabic - the language of the Quran - the closest word to the precise meaning of privacy in this research is *Khososeya*. But this word and that meaning are not in very common use for ordinary people. Also, this word in itself does not have a precise meaning, as other words should accompany it in order to make the meaning more clear and precise. For example, for the equal terminology of the house privacy in Arabic would be *Kososeyat al-Bayet*, and *Khososetat al-Rajol* or *Kososeyat al-Mara'h* for the privacy of the man or Woman, and so on.

However, the right to privacy, either for the house or of the individuals, is very well known and established in the Islamic teachings. The core values of the Islamic society indicates the importance of preserving the individual's privacy, and that every community member has the right to have his/her right preserved and respected in his own private place from other peoples' intrusion.

Indeed there are other values that involve in defining the right or perception of privacy in a Muslim society, such as norms *Urf* and tradition *Takalyed*, which tend to vary from one place to another, even in the same country. However, these values play a much less significant role in determining the definition and perception of the house privacy and its occupants, in comparison to the Islamic core values. Also, these Islamic values tend to be general and uniform almost in all regions, as the source of these values is in Islam as a religion and a

code of conduct. Therefore, the norms and traditional values provide an added definition or certain roles and manners in which the privacy could be perceived and defined more precisely to suit the norms and tradition of that specific place or region.

Islam, as both religion and social system, has an enormous impact on the social and physical characteristics of house and city forms in the Muslim world. Large number of writers, such as Arkoun, Serageldin, al-Hathloul, Hakim, Abu-Lughod, Akbar and many others, highlight this point, and discussed how Islam has affected and how privacy is defined and perceived by its followers, both in traditional and contemporary societies,.

Another writer, Vaziritabar (1990), discussed the influence of Islam on the architecture and planning of Middle Eastern cities. In his study of Iranian housing, he identified Islam as a major contributing element to patterns of privacy and concealment which affected the form of the house and settlement in the region.[33]

In this sense, Montequin (1983) also recognised that in Islam the condition of privacy plays a major role in the life of urban dweller, and he claimed that the dweller had clearly distinguished public and private lives. For a Muslim, home life symbolises the private or internal side, *Batin*, while the public life of a man (profession, travel, etc.) represents his external part, *Zahir*. He pointed out that a key to understanding the reason or the source of this separation is supplied by the Holy Quran, specifically in the following verses, whose meaning paraphrases as follows:

> "The interior of your house is a sanctuary; those who violate it by calling you while you are in it do not keep the respect which they owe to the interpreter of heaven. They should be patient and wait until you leave your house, decency demands it; but God is All-forgiving, All-compassionate."
>
> Sura XLIX, verses 4-5

However, although Adam (1990) agreed with Montequin regarding the clearly distinguished public and private lives of a Muslim dweller, he explained that the spheres of private and public, although independent, were integrated in a delicate manner. While the sphere of the individual was highly respected, there was a mutual responsibility between the public and the individual. He stressed that privacy and freedom from intrusion were governed by the notion of good or bad in relation to criteria laid down by the Islamic norms of morality, or the widely used term *Shareah* (Islamic Law).

Islamic urban organisation, in Adam's view, was the physical manifestation of the equilibrium between social homogeneity and heterogeneity, in a social system requiring both segregation of domestic life and participation in the economic and religious life of the community. The system of urban settlements was characterised by a tripartite system of 'public', 'semi-public', 'semi-private' and 'private' spaces with varying degrees of accessibility and enclosure. He illustrated this point by citing examples of public areas (such as bazaars, workshops, major mosques, caravanserais, cafes and hammams34). These areas, with their free accessibility and high public contact included them in the domain of men. Off the bazaar's wider street branch the central streets of the different Quarters; off these streets branch the narrow alleys and cul-de-sac onto which open the doorways of individual dwellings.

Bahammam (1992) stressed the impact of Islam on people's perception of privacy. He stated that in order to maintain the required level of privacy for any society, clear and explicit cultural or religious rules had to exist. In any Muslim society, dwelling privacy was defined by explicit Islamic teachings. These teachings were not confined only to performance of ceremonies and prayers but

were part of Muslim life-style, culture and daily lives. In order to discuss the notion of privacy as perceived by Muslims, he claimed, we had to understand the origin of this concept as revealed in the Quran (the Holy book of Muslims) and the *Hadith* (the sayings and traditions of the Prophet), which formed the main sources of Islamic teachings.

According to Bahammam, these Islamic teachings defined three different spheres, where individual protection from visual and acoustic invasions of privacy were required. They were:

1) Privacy of the house, between neighbours' dwellings as well as between the individual dwelling and the street;
2) Privacy between sexes; and
3) Privacy between individual family members of a dwelling

This research will be concerned predominantly with the first type of privacy (the house privacy). This type is going to be researched mainly from the visual privacy perspective. According to this, the first of Bahammam's classifications was discussed in the light of the literature reviewed in this section from the point of view of Islamic culture.

3-6-1 Privacy of the House in Islam

Muslim scholars are in full agreement that a Muslim should have the right to his/her privacy with his/her house safeguarded against any violation of privacy by others, such as neighbours, passers-by or even visitors. There are many Quranic Verses and *Hadiths* which show and emphasise the importance of privacy, not only privacy of the house but also its residents' privacy. These Verses and Hadiths also forbid the intrusion of others' private domains without their permission. Faden (1983) mentioned Quranic verses that expressed and signified the respect for the "household" and its privacy:

> "O you who believe enter no house other than your own, until you have asked permission and saluted those in them; that is best for you, in order that you may heed (what is seemly). If you find no one in the house, enter not until permission is given to you. If you are asked to go back, go back; that makes for greater purity for yourselves; and God knows all that you do."
>
> Sura XXIV, verses 27-28

Bahammam (1992) believed that these verses played a significant role in ensuring the completely peaceful and tranquil environment of the house, through the specification of rules relating to privacy in the house. Because the Holy Quran forms the most important source of guidance in Islam, the imperative tense in this verse implies a commandment. The writer explained that this requirement gave rise to the Muslim practice of not only asking permission of the owner of the dwelling before one enters, but also the residents of that house, thereby ensuring that there is no invasion of privacy. In explaining these verses, Bahammam mentioned the Prophet's *Hadith*, where the Prophet said (PBUH):

> "It is not lawful for a Muslim person to peep into the house of another person until he has asked permission. Otherwise, if he peeps into the house before asking permission, verily [it is as if] he had entered."
>
> (al-Bukari)

Hakim (1986), also, mentioned a *Hadith* which was discussed earlier, regarding the severe penalty for privacy intrusion in Islam. This *Hadith* carried a very significant meaning and indication regarding the house and its residents' privacy. The *Hadith* reads:

> Abu-Huryrah narrates that the Prophet (PBUH) said "He who looks into a house without the occupants' permission, and they puncture his eye, will have no right to demand a fine or ask for punishment."
>
> (Ahmed and al-Nisai')

Bahammam (1993) explained further that in this *Hadith* the prophet made a very clear statement about the need for full visual privacy for each dwelling. Moreover, because of the importance of this form of privacy, the prophet prohibited the act of looking into the houses of others, and considered it to be an actual physical intrusion into the house. Therefore, in Bahammam's opinion, the Quranic verses and the explanation of the prophet have required the protection of

a dwelling from an invasion of privacy by neighbouring households or by a passer-by in the street.

3-6-2 Privacy Between the Sexes

As with the former aspect of privacy, Islam plays a dominant role which affects the privacy between the sexes. Bahammam (1992) stated that according to the Islamic teachings, it was preferable for men and women to be segregated as much as possible from each other, not only in public but also in private surroundings, unless the men are *Maharem* (male relatives , e.g., brothers, uncles, who, according to these teachings, cannot marry the lady in question).The source of this segregation is laid down by the Holy Quran as well as in the Hadiths of the Prophet (PBUH). Bahammam, Faden (1983), al-Hemaidi (1991), as well as many others, stated and discussed the following Quranic verses which are considered the most significant source of these teachings :

> "O Prophet! Tell the wives and daughters and the believing women, that they should cast their outer garments over their persons (when abroad); That is most convenient that they should be known (as such) and not molested. And God is Oft-Forgiving, Most Merciful." Sura XXXIII: Ahzab: 59

> "Say to the believing men that they should lower their gaze and guard their modesty: that will make for greater purity for them: and Allah is well acquainted with all that they do. And say to the believing women that they should lower their gaze and guard their modesty; that they should not display their beauty and ornaments except what (must ordinarily) appear thereof; that they should, draw their veils over their bosoms and not display their beauty except to their husbands, their fathers, their husbands' fathers, their sons, their husbands' sons, their brothers or their brothers' sons, or their sisters' sons." Sura XXIV, verses 30-31

These verses, according to Faden and al-Hemaidi, defined which female of the family a male can see without a *Hijab* (the dress covering the whole body of the woman). They also indicated, in Bahammam's opinion, that men are expected to lower their gaze and should not stare openly at women. The latter added that when a Muslim woman leaves her house, she is expected to observe certain rules regarding dress: she is required to wear a *Hijab* which covers all parts of her body

so as not to reveal her figure. In the presence of the persons mentioned in the previous verses, *Maharem* (males who cannot marry that woman, and consequently are allowed to see her without *Hijab*), a Muslim woman may wear whatever she pleases. When not with these specified individuals only the hands and face should be left uncovered, say some scholars, while others say that the face, too, should be covered, Lemu (1978).

There are two different words used to describe the different types of veil worn by a Muslim woman. These words are *Nikab* and *Hijab*. The word *Nikab* indicates the woman is covering her face, while *Hijab* usually indicates the woman is uncovering her face and hands, although both words assume that the woman is covering all other parts of the body. The reason behind this differentiation between *Hijab* and *Nikab* is related to two different views of the Muslim scholars regarding the wearing of the veil. These two views are, the Traditional and the Moderate Trend.

According to Bashier (1980), the Traditional view on the veiling of Muslim women was that the veiling was to completely cover the body of the woman, including her face, the *Nikab*. This view is widespread in countries fortunate enough to escape Western colonialism, such as Saudi Arabia as well as some rural areas of the Muslim world where the influence of colonisation was minimum. It was also the position adopted by many Hanbali Jurists as well as some modern Islamic movements around the world.35

Those holding the Moderate Trend point of view did not dispute the importance or the obligations of the *Hijab* for Muslim women, they only asserted that it did not include covering the face and hands (*Nikab*). They claimed that covering the face (*Nikab*), although it may have been commendable and desired, and indeed even obligatory for women of exceptional beauty, was generally not obligatory. This view is most common among Muslims and among a small proportion of the populations of Saudi Arabia and the Gulf States.

However, the veil, whether it is *Nikab* or *Hijab*, symbolises the special restrictions that Islam places on the public conduct of Muslim women, and also indicates the importance of family privacy in Muslim life. Therefore, if Muslims accept the Islamic emphasis on the issue of private and family privacy, then they must be prepared to accept the guidelines and restrictions which Islamic law (*Shareah*) places upon the public role of Muslim women, as well as the means used to control male-female interaction. It would not be reasonable for a Muslim to reject totally the Muslim veil (whether it was *Nikab* or *Hijab*) and what it stands for and at the same time insist on maintaining the Muslim code of conduct and the Muslim system of social interaction.

3-6-3 The Effects of Sex Segregation on Spatial Privacy

Nevertheless, Bahammam agreed with Faden and al-Hemaidi that these Quranic verses and many others dictated a special form of privacy to protect Muslim women from the eyes of unrelated male visitors. Furthermore, he added "it is an immoral act, forbidden by Islamic teaching, for an unrelated male visitor to look at the women in a dwelling where he is a guest."36 He narrated a story about this point which concerned Abdu Allah Ibn Mas'ud (one of the Prophet's companions), who once went with a group of men to visit someone who was ill. During the visit, one of the men kept staring at a woman in the house. Ibn Mas'ud said to him: "It would be preferable if you were blinded (rather than look at the woman in the house)" (al-bukhari). Bahammam concluded from this story that the man's sin of staring at the woman was seen as so serious as to make even the putting out of his eyes a less serious matter. Thus, it is not only necessary for women to wear *Hijab* in the presence of non-*Maharem* males, but also these males should avoid staring at these women and lower their eyes.

Furthermore, Moustapha (1988) added that veiling was more common in cities than in rural areas, where women played (and still play) an active role in

agriculture and the raising of cattle. He explained that the veiling and the very long and wide black dress used by women, which is called *Abaiah*, were only known in the later history of Islam. During that later period, lady-slaves *al-Jawari* used to wear clothes similar to their lady owners, so these owners used to wear longer, wider and more respected clothes than *al-Jawari*, in order to be easily recognised and more respected.[37]

Abu-Lughod (1983) discussed the regulations of Islam and Hinduism regarding this type of privacy and the strict controls to ensure female modesty. She indicated that while both religions insist on female modesty, they differed in the definition of modesty. In Hindu society, maximum segregation between the wife and her husband's male relatives, most especially the husband's father, is mostly needed within the dwelling itself. In Islam, "maximum segregation between the sexes is required outside the kin group. Private space is safe and secure."38

To some extent, the last statement could lead to an incorrect conclusion. It might suggest that, in Islam, privacy for women is needed only in order to be safe from non-relatives. Therefore, there would be no restrictions regarding female modesty among the family members in the house, which may contradict the previous Quranic verses and the opinions of Bahammam, Faden and al-Hemaidi. These verses and writers pointed out that there are restrictions over male-female conduct amongst some of the family members who are not *Maharem*, such as between the wife and her husband's brothers, the husband and his wife's sisters, and male and female cousins. Accordingly, even in a Muslim house, privacy is often needed for different spaces within the dwelling, especially in the case of an extended family. However these restrictions are less strong than the restrictions placed upon a stranger, whether he is inside or outside the house.

Furthermore, Warren and Fathi (1982) observed, from their study of the traditional part of Baghdad, that women travelled much less than their men folk

and if they gathered in public places, such as mosques or baths, they did so at a time or in sections reserved for their use. They too hold their meetings, *majlis*, and their social order reflects that of their men-folk. Effectively the lives of men and women are confined to two parallel strata, linked by house and children.[39]

3-6-4 Two Types of Privacy in Muslim Dwellings

After identifying and reviewing the two types of privacy, it is important to clarify and distinguish between these types. The privacy of the house means that nobody should observe the private domain of the house (e.g. bedroom, kitchen, courtyard), without the approval of its owner or occupiers, regardless of who is being observed, be it a man, woman, or child. In some cases there may be no-one in the house, but it is still considered a privacy violation of that house. Therefore, if for example a person - a woman or a man, it makes no difference - has overlooked the private domain (courtyard, bedroom, kitchen etc.) of his neighbouring dwelling, then that person has committed a sin by violating the privacy of his neighbour's house regardless of whether the person in question has seen the husband, the wife, the daughter, the son or the servant of that neighbour. Thus, in this case, it is the house's privacy and the privacy of its occupiers in general which matter.

The other type of privacy is the privacy between sexes, particularly women, or in other words segregation between sexes. A woman who is not wearing a Hijab, should: a) not be seen by other non-Maharem males, whether in a public place (such as a market or street) or even in a private place (such as her house), b) not leave her private domain to places where she can be seen by non-Maharem. Hence, it is the privacy of women in general which matters here, both in their private domain or in the street.

Therefore, if a man has overlooked his neighbour's yard and has seen his neighbour's wife with her Hijab on, then he is considered a violator of that

house's privacy. But if that neighbour has seen his neighbour's wife without her Hijab on, then he has violated both the neighbour's wife (women's privacy) and the privacy of the house. Consequently, if that man has seen his neighbour's son, for example, then that man has violated the house's privacy only.

According to this review of the two types of privacy, and their relation to Islamic culture, it appears that Islam plays a clear and major role in defining privacy and shaping its perception by Muslims. Unfortunately, this role is often overlooked by planning and design practices in Saudi Arabia, as well as in the Arab and Muslim worlds in general. Germeraad (1992) stressed this point, and indicated that Islamic culture and the heritage based on Islamic traditions seemed, in general, undervalued in the designs of human settlements in the Middle East.

In addition to the educational efforts by scholars and organisations, people themselves have started to play a very active role in identifying and formulating the Islamic culture as an original source of inspiration and legislation for their lifestyle. This role is beginning to be recognised and discussed by growing number of writers and organisations. For example, Akbar (1992) indicated that the return to a golden past, the desire to live according to the Quran and the *Sunnah*, the example of the Prophet (PBUH), of his behaviour, clothes and personal rituals, have always been an ideal for Muslims. Educational reformers and visionaries have repeated this message over centuries. Nevertheless, "the evidence suggests that Muslims are entering an even more self-consciously Islamic phase than in the recent past."40

These indications are supported by new regulations adopted in some countries, as well as the findings of many sociologists' surveys carried out in some of the Arabic and Islamic cities. For example, in June 1996, the Kuwaiti Parliament approved a new law asking its government to make arrangements for segregating between the two sexes in the country's university. Also, Adam

(1990), found out in his survey of Sudanese houses in Omdurman, Sudan, that the lifestyle in the city was mainly shaped by Islamic culture. He discovered that

> "the question of 'privacy' is taking a central part in the lives of the people, it is part of their belief, personality, self esteem, and pride. Intrusion to this privacy would not be acceptable."[41]

The research findings of Vaziritabar (1990), al-Hemaidi (1991) and Bahammam (1992), showed that privacy was very important to local people and was deeply rooted in their cultures. The former research was conducted in the houses of Tehran in Iran, while the other two were carried out in the houses of Riyadh in Saudi Arabia. Both residents' attitudes and behaviour, in these cities, were reflected through user reactions to their built environment. The writers stated that the majority of people in these studies show a real concern for most kinds of privacy and put a high value on them. They pointed out that the highly significant value given to privacy has a strong religious connotation in Islamic culture.

3-7 Privacy in Western Culture

3-7-1 Definition of The West and Privacy

For the purpose of this research, the term 'western countries' or 'the west' will cover, geographically, Western Europe and North America. The reason behind choosing western countries and their cultures in this study is due to their colonisation of Muslim countries in the 19th and 20th centuries, as well as their political, economic and cultural influence on the population of these Muslim countries.

Muslims were influenced in that period, and afterwards, by their colonisers, or former colonisers, in terms of political, legal, economic, technological as well as behavioural and sociological matters, in a process that

was known as 'Modernisation'. This influence continued even after the independence of Muslim states, but in an indirect form, such as economic, technological and in some cases political prototypes, rather than the strong and direct form of military rule during the colonial period. Therefore, it is essential to look at the privacy concept and its perception in Western cultures, in order to understand how this concept, later on, was inherited and developed by Muslims from the cultures of their former-colonisers.

Once more, this review will look at privacy in Western cultures from the point of view defined earlier, that is "the protection of the dwelling and its residents' from being violated by others' undesired visual observation". Therefore, the review will focus on the perception of privacy by people in Western countries according to this definition, and will look at how this perception developed over time and regions.

3-7-2 Perception of Spatial Privacy Before the 20th Century in Europe

Steiner (1967) pointed out that the separation and joining of settings and activities in terms of their privacy dates from the seventeenth century. Halmos (1952), however, reminded us that the concept of people's perception of privacy had changed throughout the ages-from "seclusion for prayer to God" to "a desire for union with Satan", to "separation from others" to "introversion". Today, in his view, it assumes new importance mostly because of expanded support for "the right to privacy", but also because a number of social psychologists have found privacy interesting to study for its broader theoretical and empirical implications. On the other hand, Evans (1978) claimed that the search for privacy, comfort and independence through the agency of architecture was quite recent, and even when these words first came into play and were used in relation to household affairs, their meanings were quite different from those we now understand.

The contemporary style of internal layout of dwellings, that is most common in the west and is usually accepted and no longer questioned, has a relatively recent pattern. Hall (1970) and Evans (1978) stated that the traditional organisation of spaces in large and small houses in Europe from the middle ages to early modern times, consisted of a matrix of discreet but thoroughly interconnected rooms. Occupants had to pass through one room into another, and most probably household members had no personal physical privacy in the sense in which it is understood today. Evans discussed the internal layout of the early 16th Century Villa Madama near Rome, as an example of house form very common in Europe at that time, from the perspective of occupants' privacy. In this Villa, as in virtually all domestic architecture prior to 1650, there was no qualitative distinction between the way through the house and the inhabited spaces within it, see Figure 3-3. He explained:

> "The villa was, in terms of occupation, an open plan, relatively permeable to the numerous members of the household, all of whom - men, women, children, servants and visitors - were obliged to pass through a matrix of connecting rooms where the day-to-day business of life was carried on. It was inevitable that during the course of a day paths would intersect, and that every activity was liable to intersection unless very definite measures were taken to avoid it."[42]

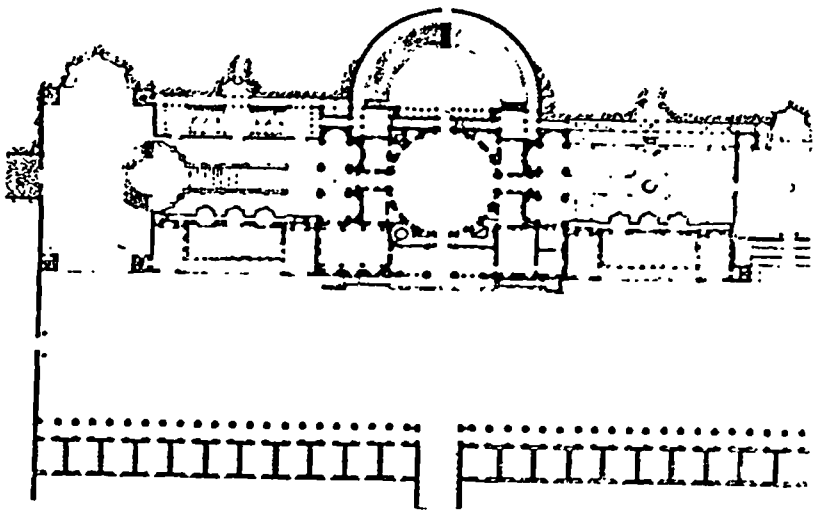

Figure 3-3: Villa Madama, plan by Anto Sangallo, 1519. (After Evans, 1978)

This was the typical arrangement of internal layout of the dwelling's space in Europe, until "it was challenged in the 17th century and finally displaced in the 19th by the corridor plan, which is appropriate to a society that finds carnality distasteful, that sees the body as a vessel of mind and spirit, and in which privacy is habitual"[43]. Evans added that in the 19th century, it was no longer necessary to pass serially through the intractable occupied territory of rooms with all the diversion, incidents and accidents that they might harbour. Instead the door of any room would deliver you into a network of routes from which the room next door and the furthest extremity of the house were almost equally accessible, see Figure 3-4 and 3-5. Furthermore, according to Mumford (1979), doors, not merely curtains, separated rooms for the first time and gave individual's privacy from other occupants in the house. The new pattern of dwelling layout allowed the preservation of the singularity of each room by its opening into the thoroughfare.[44]

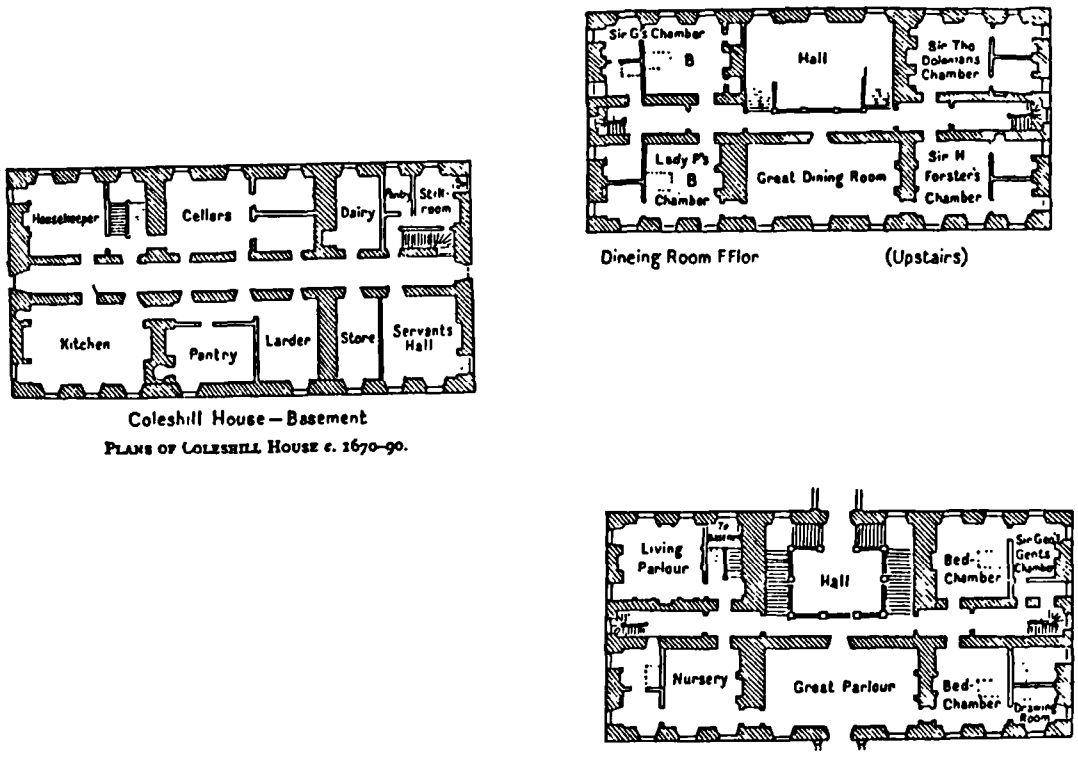

Figure 3-4: Coleshill, Berkshire, plans show the dominant role of passages, connecting all rooms in the house, 1667. (After Evans, 1978).

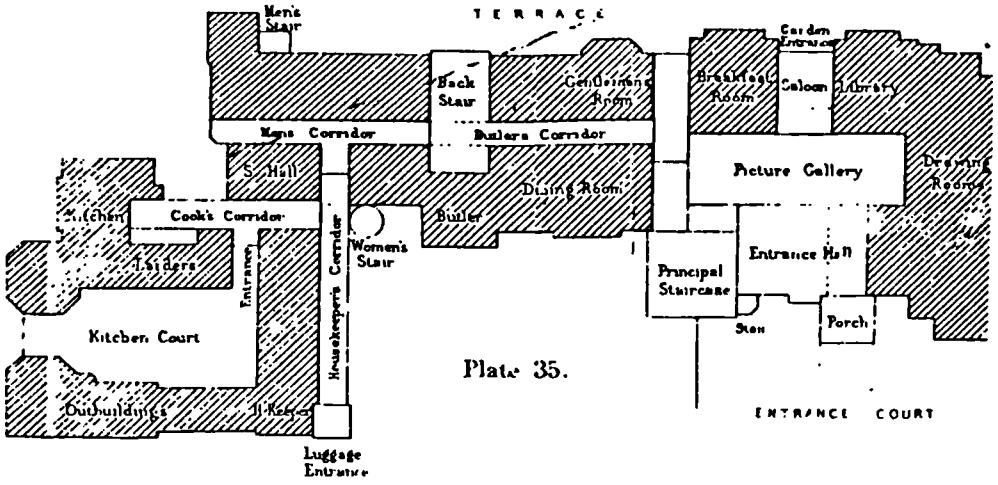

Figure 3-5: Thoroughfare plan of Robert Kerr. The issue of movement and privacy has been resolved by the use of Thoroughfares, 1864. (After Evans, 1978).

Madge (1964) gave another interesting picture of privacy in English houses. He explained that the first step was a bed of one's own. In the Middle Ages, beds, if they were available at all, were liable to be shared even with complete strangers. The next step was segregation of the sexes into separate bedrooms, as in the 17th century. Then, Madge discussed the internal pattern of space arrangement to be found in English houses. He claimed that "the ideal of three bedrooms-one for parents and one each for male and female children-was not seriously entertained as a universal standard until 1935, when the special Overcrowding Survey was undertaken"[45].

3-7-3 Perception of Spatial Privacy in the Contemporary West

Today, Western culture incorporates a variety of customs, rules and norms, which communicate openness or closedness to others, and which are readily understood by most people in this culture. However, the perception of privacy and its concept differs behaviourally even between these Western countries.[46]

In the second half of this century, sociologists, as well as architects, felt the importance and the scarcity of studies and surveys of privacy issues in housing. This has motivated several researchers in different Western countries to carry out some studies and surveys on this issue, thereby helping to fill a long neglected void area of research. These specialists, as well as some government agencies in England and the United States, undertook several studies to find out about people's perceptions and definition of privacy, and to identify some of the problems of privacy and its violation in different types of housing. These housing studies fell into three distinct categories; the first category tended to define what was meant by privacy, the second dealt with how people perceived the issue of privacy, and the third dealt with the problems associated with privacy and its violation in housing.

One of the very first and most interesting studies of privacy was a survey of intensive interviews with twenty-five people in Greater London. This study, conducted by Margaret Willis in 1963, covered people living in flats and houses. All those interviewed were asked to define privacy. The responses of the interviewees seemed to fall into three distinct categories. These were, privacy within the home, privacy in regard to the relationships with other people such as neighbours, and the physical privacy of not being overlooked. Relationships with other people, were the most frequently mentioned.

Willis, also, found out that the requirements for privacy were usually attributable to overlooking and neighbourhood relationships, whilst internal privacy (personal privacy of individuals within the house itself) was not very important for working class people. She, also, discovered that some people preferred to display their houses and, by implication, themselves to others in the neighbourhood.

She discussed what the people interviewed required in terms of 'visual protection' from neighbours, and concentrated on the purely physical aspects of overlooking. Willis stated that while half the sample were conscious of and to some extent disturbed by people overlooking them in their homes or gardens, only a few of them felt strongly about not being overlooked, and privacy to them was defined in this way. These people seemed to fear being criticised or judged by others. She claimed that

> "whether overlooking is resented and thought an intrusion on privacy or whether it is ignored, does not seem to depend so much on the actual difference between or proximity of people or buildings, as on the type of people, what they are doing, who looks in and where"[47].

For example, several people stated that they disliked being overlooked whilst they were eating. Others stressed that bedrooms definitely need privacy because of people's modesty while undressing. But because bedrooms are not used during the day, little active consideration was given to overlooking. Therefore, most people just provided net curtains and closed their main curtains at night.

When people were outdoors, i.e. in the garden, they tended to have a varying attitude to perceptions of privacy according to the activity engaged in such as digging, in comparison with sitting and relaxing. The point from which people overlooked also made a difference. For instance, there was less criticism of being looked in a garden from the windows of neighbours' houses than being visible across a number of gardens. When indoors, people who look down from above are felt to intrude more because it is possible to see the whole of a room. People in flats, therefore, could feel particularly conscious of overlooking from the parallel flat in the block opposite.

It also depended on who was doing the overlooking; if a child or a friend was the one who was overlooking then this was perceived as less threatening than if it was an adult or a stranger. An interesting finding of this study was that

personality characteristics were an important factor in determining people's perception of privacy, and their reactions and feelings towards being overlooked.[48]

Another interesting finding is that "most people when asked if they looked in a lighted window, were apologetic about it and tried to explain how their eyes were automatically drawn to it. There was the feeling that the home is personal, and that they really should not look in as this was intruding on privacy"49. Therefore, people believed net curtains were the easiest way to achieve privacy from overlooking. They had a certain status and decorative value in many working class homes where they 'let in the light' and obviate the drawing of ordinary curtains.

In the same year (1963), Chermayeff and Alexander published a very important book in the United States, called "Community and Privacy". In this book, the type of privacy they researched was overlooking and noise infiltration with regard to physically defined settings. They defined and classified the arrangement of urban relationship domains, in terms of privacy constructs, in four different urban realms: Urban, Group, Family, Individual. The resulting behavioural domains, according to this arrangement, were Urban-Public, Urban semi-public, Group-Public, Group-Private, Family-Private, Individual-Private.

Different types of house forms and their layout components were studied and analysed according to these domains. Corresponding to this relationship and analysis, outdoor spaces-such as courtyards, corridors, and passages - became supports for the privacy of individual settings. Therefore, the significant conclusion of this study was not only an unqualified support for the courtyard house approach, but also the maintenance of the privacy-community construct continuous between urban designers. Privacy was seen as being a very important element in the design of urban-space.

On the other hand, privacy first became an important issue in housing studies and design in England. It also became an official standard for environmental assessment with four publications published by the M.O.L.G. in the late 1960s. These publications were: a) "Houses and People" (1966), b) "Layout Study Survey" (1967), c) "DB6: Space in the Home" (1968), and d) "DB14: House Planning: A Guide to User Needs with a Check-List" (1968). The influence of previous literature on privacy, especially Chermayeff and Alexander, was clearly noticeable in all four publications. The principal meaning and concept of privacy in all of them meant the right 'physical' relationship between the house owner and the rest 'out there', with particular emphasis placed upon the overlooking problem50.

3-7-3-1 People's Perception of Privacy

In the late 1960s, Kuper (1968) carried out a survey on a sample of 247 housewives from dissimilar urban neighbourhoods. He asked them to explain what they understood by 'intrusion of privacy'. Their replies produced answers that were connected to the neighbourhood context. They covered: "being overlooked", "suffering from noise", "being restricted in activities for fear of the noise oneself would make", "suffering from the gossip of other residents", "being invaded by too much neighbourness"51.

In 1965, another survey produced interesting definitions and opinions of privacy by housewives of courtyard houses in Dundee, Scotland. The Architectural Research Unit at Edinburgh University produced a report for this survey in 1968. The report stated that the meaning of privacy elicited from the vast majority of this group was "freedom to live one's own life" (58%). This definition included the following subordinate privacy constructs: "being able to do what I want to do in my own house without neighbours prying" (16%); "freedom from in looking to the house" (16%); "freedom from in looking to the

garden" (14%); "freedom from noise" (8%). The results of the report indicated that:

> "the majority of housewives were well satisfied with the courtyard house type and with what it had to offer. The courtyards were well liked particularly because of the privacy provided. .... The results confirmed that the idea of an enclosed outdoor space was acceptable to most people. Main uses of the courtyards had been for clothes drying, gardening, sitting out and storage."[52]

The report, also, indicated that the findings on privacy showed this was an important element in many people's lives, and that the meaning most often associated with it was freedom to live one's own life without outside interference or intrusion, and freedom from seeing or being seen by neighbours and passers-by when in the house or in the garden. Measured by such standards, the report concluded that the courtyard houses appeared to provide the kind of privacy that informants wanted.

Another survey was conducted on a sample of 1596 people from England, Scotland and Wales, and was prepared in a report for the British Government in 1972. The respondents in this survey were asked, "What does the word 'privacy' mean to you?". The following definitions were extracted: a) "Being allowed to live your own life as you want" (33%); b) "Keeping your own private affairs to yourself" (20%); c) "Other people minding their own business" (14%); d) "Keeping yourself to yourself" (14%), and others53.

3-7-3-2 The Importance of Privacy in People's Opinions

The 1972 report, included a section on assessing the importance of privacy in the informants' minds. It found out that 'protecting people's privacy' was more important than 'building more schools', 'protecting freedom of speech', but less important than economic problems such as 'keeping down the prices', 'reducing unemployment', 'stopping strikes'. But, when privacy was evaluated within a context of social issues, only then was it considered to be the highest ranking social issue by respondents. The responses were ranked as follows: 'Having

privacy', 'Improving race relations', 'Protecting freedom of speech', 'Protecting the freedom of press', 'Giving equal rights to women'.

In Australia, Sarkissian and Doherty (1987) published a report on a survey carried out in a suburban neighbourhood in Sydney. The findings of the survey indicated that both privacy and supervised play areas for children emerged as major concerns. Privacy concerns were also related to crime or fear of crime and security issues. Many residents perceived their environment as "hostile" or "alien"; the unit and its private yard were seen as the only protected refuge.

All of these surveys indicated that privacy was an important individual need for a very large proportion of residents, as well as a very significant social issue and a very important measure in determining dwelling environment preferences. It also had strong social and physical context associations.

3-7-3-3 Different Places of the House and Their Privacy

As Willis (1963) stated earlier in this section, different places or rooms in the house have different ratings in terms of privacy, as well as dissimilar importance in degrees of privacy. In a Scottish study (Hill, 1970), the analysis showed that by far the largest source of diversity of informants' responses was due to the room function factor. Hill stated that when "the data is further partitioned it reveals the expected results; namely that the privacy standards in the bedroom were much greater than those in the kitchen-dining room, and also that observers showed greater desire for outward vision with the landscape-type view than with a nearby pedestrian walk"54. In other words, living room privacy had to do with the control over the choice of looking out, whereas kitchen-dining room and bedroom privacy had more to do with the control over the ability of others to look in.

A study of a housing estate in Scotland, conducted by Markus (1972), proved and confirmed Willis and Hill's view, that the degree of privacy importance depended largely on the precise place or room use in the house. Markus pointed out that kitchen privacy was seen as being more important than living room privacy[55].

However, even in Western countries, many writers and sociologists believed that the privacy issue had not been sufficiently researched, and privacy was undervalued in housing planning and design. Most of these writers, like Madge (1964), Pamir (1976), Moore (1984), Vaziritabar (1990) and others, blamed sociologists for not raising this issue earlier, and for not giving it an adequate share of research. They also, along with some architects, criticised the architectural profession for treating privacy as a function of the type and size of buildings or site layouts only, and not as a function of human groups and their variances. The architect, formed by his traditional training, has not carefully thought about how people define and perceive privacy, how they want and prefer to achieve it, or the extent of cultural and individual character differences involved.

3- 8 Privacy in Other Cultures

Cultural values differ between societies, so it is obvious that the definition and need for privacy will differ between societies too. Therefore, in this section, privacy will be examined in different societies, from different parts of the world. The purpose of this examination is to see how these societies' members define and perceive privacy in their built environment and behaviour, and how this will relate to the overall definition of privacy in this research.

Rapoport (1969) considered privacy as a primary human necessity that differed in both definition and perception in most cultures. These cultures had norms and rules that governed the spatial implications for the individual and the group with regard to privacy. Rapoport believed that factors like rules of sex and shame and the position of women in a society affected people's perception of privacy in a society. He produced a number of examples that showed the different meanings of privacy inherited by different societies.

Although Adam (1990) agreed with Rapoport in relation to the various definitions of privacy because of different cultures, he added that historical and archaeological evidence showed privacy not only to be much less of a social necessity but less of a social possibility in non-literate societies (simple societies) compared to those which use a written language (civilised societies). He cited the Ikung busmen, the Eskimo or the Mbuti as examples. He also stated that "it is hard to imagine any person demanding rights against society, since the main problem is to preserve forms of co-operation that are a matter of life and death for everybody. It is only in civilised societies that the need for private rights against the social order can take a clear form. The need can exist without being satisfied goes without saying."56

Moore (1984) also shared this point of view, and considered the Siriono society as an example of a very simple society that showed minimal concern about privacy. On the other hand, Adam regarded the Siriono to be among the most irritable, in terms of living together, whilst at the same time they displayed the least concern about the social threat from quarrelling.

Nevertheless, Moore stated that in Siriono society, human activities were generally conducted in the presence of others. But Adam commented that human beings do not always like to do things this way. He added that, when the presence of other people became thoroughly demanding, oppressive or boring, the person looked for privacy for at least a short escape from interaction. In this case, the

victim appeared trapped and could not, or was unwilling to, carry on the interaction, and this could happen in any society or culture.[57]

In other societies, the presence of a small intimate group, provided the person with privacy for protection and relief from the larger society and their demands and obligations. Moore explained that within such a group, the emotional environment was friendly, supportive, encouraging trust and relaxation. Therefore, the preservation of self-control required in "public" by the larger society was not needed.

He discussed the society of the Fulani of Upper Volta as an example of this case. Moore explained that in this society the "public" behaviour demanded that one puts forth an image of strong self-mastery that amounted to a denial of emotional and physiological requirements. But there were certain situations where this behaviour was not needed, for example in front of a person's mother or mothers' brother. In this context, a man had no need for shame.

Thus, in general, mother-son and father-daughter could be considered as forms of intimate retreat, that incorporated affection, protection and meeting of personal needs. Moreover, Moore added that transhumance or taking cattle to the salt lakes was considered one form of safety valve that existed in Fulani society. But this option was only available to young men.

Lastly, in order to define privacy safely, one should look at people's culture. A complete understanding of people's culture is necessary in order to understand how people perceive privacy in their own culture. Only after understanding how privacy is perceived by these people, could a precise definition of privacy be formulated.

3- 9 Privacy in Contemporary Saudi Arabian Culture

3-9-1 Islam and Privacy in Saudi Arabia

Islam is the religion of Saudi Arabia and that of its entire population.[58] The heritage of Saudi Arabia, since the 7th century AD, is based upon the Islamic faith. The country's legislation has as its foundation in the *Shariah* -the Islamic Law, which is based on two important sources, the Holy Quran and the *Hadith.*

Since the coming of the prophet, Islam has encompassed every aspect of people's lives, and has served as a source of direct and continuous guidance. To this day, Islam continues to play a vital role in the political, economic, social, and cultural life of its followers through its clear and fixed teachings and rules.

As one of the very few westerners who wrote about Saudi Arabia in the early days of the oil discovery (in the 1940s and 1950s) and the wealth it carried with it afterwards, Lipsky (1959) acknowledged the influence of Islam upon people's beliefs and practice. In his book "Saudi Arabia: its People, its Society, its Culture", Lipsky described the Saudi Arabian family of that time as an extended family-type, usually with three generations represented in a household; a man and his wife or wives, their children, and their married sons with their wives and children. He stated that the traditional social practices and values of Saudi Arabia had been challenged by the incoming Western cultural elements as a result of the increase in wealth.

However, he doubted whether the core of traditional values had been shaken, and believed that tradition would continue to define the basic meaning and goals of Saudi Arabian individuals and social life. He cited that some change had obviously occurred using the example of the replacement of the camel by the automobile, diesel pumps replacing the donkey or camel powered lifts, and sandals being replaced by shoes.

But these changes and other more fundamental ones, in terms of the material things men wanted or used, did not, he believed, necessarily alter the distinctive pattern of behaviour and belief, which gave identity and continuity to a particular culture. Saudi Arabians, despite the dramatic changes and events that followed the discovery of oil in the desert, were recognisably the inheritors of a tradition that geographic isolation and religious fervour had kept strong.

In a more recent study, Soraya Altorki (1986) wrote about the continuity and change among elite domestic groups in Jeddah between the years 1971-1984. In order to understand these changes, she compared prominent families in Jeddah, looking at behavioural and ideological changes to be found in three generations in these families. She noticed that:

> "In all families studied, religious fastidiousness had declined over the three generations. The trend in all probability is due partly to the influence of historical events and partly to stages in the life cycle of these men and women".[59]

However, regardless of this statement, if found to be true, she acknowledged that Islam was still a major player in people's beliefs and life style. If the importance of Islam was not true for all Saudi Arabians, it was true for at least the majority of them, especially when it came to the critical issue of privacy. Meanwhile, in other much more recent studies, researchers observed that in most Islamic societies (in general) and in Saudi Arabian society (in particular) there appeared to be a renewal interest or revival in Islamic practices and way of life, such as al-Shareef (1988), Bahammam (1992) and al-Hemaidi (1991).

For example, when Bahammam discussed the Islamic way of life in today's Saudi Arabia, he stated that:

> "in accordance with Islamic teaching, Saudi women in public places are segregated from men. In some universities offering programmes not available in Saudi girl's colleges, for example, female students are completely segregated from the male students and professors. They watch lectures on closed circuit television and ask questions of the professor through telephones installed in their classrooms."[60]

Moreover, he added that this separation of men and women was not only presented in public institutions, but also in private houses as well, at least in those instances where women were not related to the men in question by blood or marriage. To the present day, women leaving their home still wear a black veil, the *Abaya*, which covers their head, shoulders, and body, conforming with Islam's rule of proper female attire, see Figure 3-6.

Figure 3-6: The *abaya*, the black veil worn by women leaving home to conform with Islamic rules on dress. (after Bahammam (1987)).

3-9-2 The Effect of Islam on Spatial Privacy

Likewise, Fadan (1983), in his Ph.D. thesis, discussed the major role of Islam in Saudi Arabian life, and the effect of this role in defining and perceiving privacy. He stated that Islam is the religion of all the inhabitants of the Arabian Peninsula - probably the only region within the Islamic world which adhered to strict, conservative religious beliefs during the 19th and early 20th centuries. Due to this fact, the physical environment of Saudi Arabian villages and cities was

substantially influenced by Islamic guidance. Fadan claimed that there are three major themes that have directly influenced the physical form of houses and neighbourhoods in Saudi Arabia. They are: family ties, privacy and relationships with neighbours.

In explaining the reasons for citing privacy as one of these three themes, Fadan argued that in the very conservative Saudi society, privacy played a major role in people's lifestyles, especially concerning female family members and unrelated males. Such a strong cultural value influenced people to arrange their dwellings in order to preserve a certain level of privacy. In the traditional Saudi house, two sections in the house required considerable privacy. The first section was usually located away from the main entrance, or on the second floor within the family domain, and required maximum privacy from people who were not closely related to the family. The second section was located near the entrance, where guests and close friends were generally received. Fadan pointed out that in spite of the different forms of traditional Islamic house, the theme of privacy recurred frequently.

Bahammam (1992) agreed with Fadan and others regarding the effect of Islam on people's beliefs and way of life which would, therefore, influence how people perceived privacy. He also stated that in any Muslim society, dwelling privacy was defined by specific Islamic teachings. These Islamic teachings have existed for many centuries, and their influence was clearly visible in Saudi Arabia's traditional dwellings.

He explained that the foundation of privacy in Saudi society lay in rules emanating from the Quran and the Hadith. These teaching affected the arrangement of Saudi Arabian traditional dwellings. In his view, these teachings defined the following three different spheres: 1. Privacy of the whole dwelling, 2. Privacy between the sexes, and 3. Privacy among individual family members.

Bahammam stated that in traditional dwellings, privacy was achieved through physical means, by specifically designed openings, and insulating interior spaces against the exterior and through specific interior arrangements. Various architectural solutions for creating and preserving privacy were characteristic of Saudi Arabia's traditional dwellings.

Furthermore, in an earlier study, Bahammam (1987) discusses the various architectural elements and layouts in the traditional Saudi house, and the influence of the privacy issue on the formation of these elements. They include the inward-directed concept of the courtyard house which minimises openings to the outside while exposing one or many inner courtyards to the sky, thus providing privacy from the outside, see Figure 3-7.

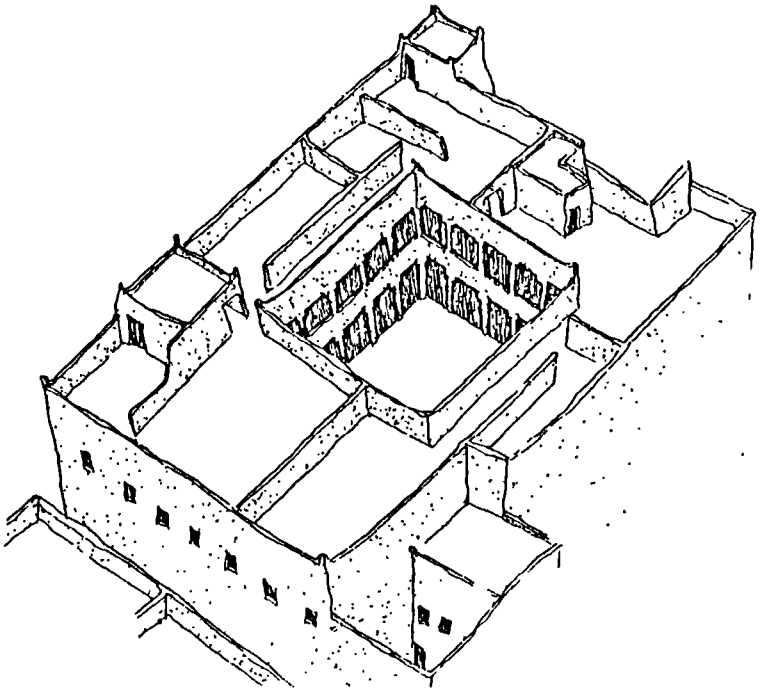

Figure 3-7: The inward orientation of the traditional courtyard house, and its rooftop provided with a high parapet to protect family privacy.

Another architectural element is the *mashrabiyah*, a wood-lattice window screen designed to facilitate ventilation and entry of light, while covering outside openings of the dwelling. Bahammam claims that *mashrabiyah* provides full

visual protection from the street and neighbouring houses, see Figure 3-8. When large openings are not needed, small openings just above eye-level are used to maintain privacy from the outside.

The entrance way with its privacy wall element is also instrumental in achieving visual privacy. It does so by blocking direct views from passers-by in the street, see Figure 3-9. The roof is surrounded by a high parapet to allow a family to use the entire space without compromising its privacy. All buildings in the old part of any Saudi city are of the same height to protect the privacy of each dwelling from overhead intrusions. Bahammam concluded from this analysis that all types of traditional dwellings have been divided, either horizontally or vertically, into two main sections: the male guest section and the family or female section; this is discussed further in Chapter 4.

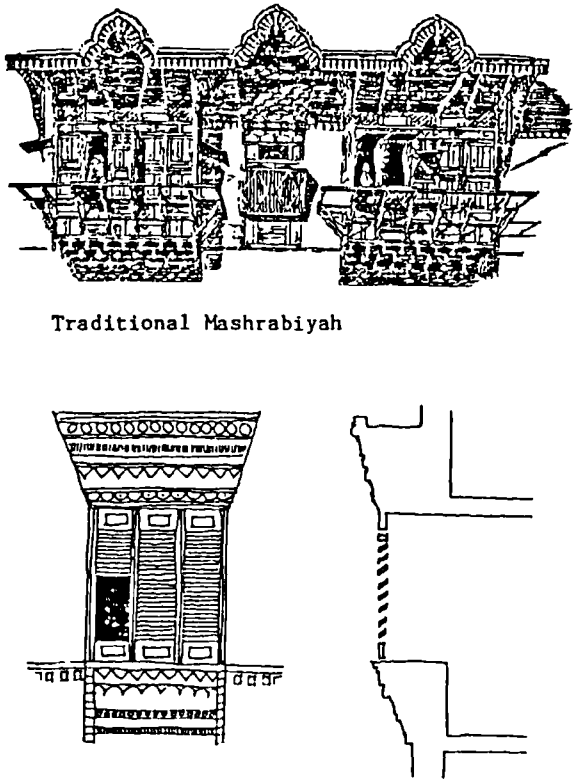

Figure 3-8: The mashrabiyah, a screen usually made of wooden slats is used as an architectural device to maintain privacy but permits the residents to view outside (after Bahammam, 1987).

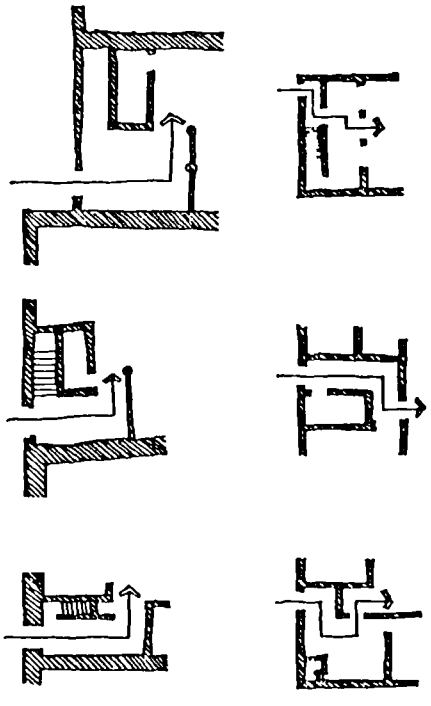

Figure 3-9: Typical entrance way of the traditional house with a wall placed in such a manner to ensure visual privacy of the interior(after Bahammam, 1987).

3-9-3 Modernisation and Spatial Privacy in Saudi Arabia

During the last four decades Saudi Arabia has experienced rapid growth in terms of economy, population, technology and urban areas. A city such as Riyadh has been transformed from a mud-walled town of 25,000 inhabitants to an international metropolis of 2 million people in less than 40 years. As a result of this rapid growth, the traditional built environment and its planning principles disappeared very fast. Even those neighbourhoods or dwellings which had not been demolished were no longer occupied by their original residents, if they were inhabited at all.

With this rapid growth, in the 1960s and 1970s various imported urban forms and regulations were implemented. Al-Hemaidi (1991) pointed out that these forms and regulations relate neither to the traditionally built environment and culture nor to the local climate of the city. He stated that these imported forms were generally characterised by free-standing low density "Villa" type dwellings. New building regulations were introduced such as setbacks from boundaries and site coverage limits, see Figure 3-10 and 3-11.

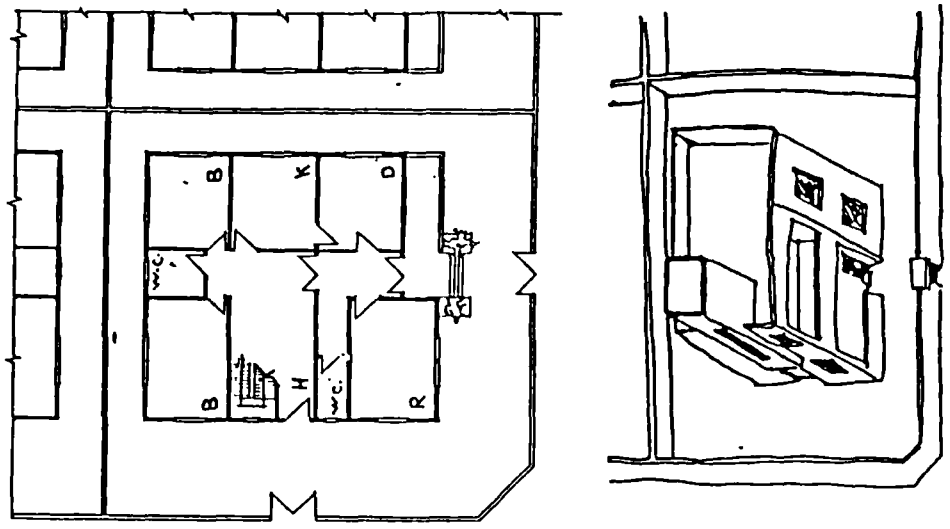

Figure 3-10: The new house type "Villa" with its reversed house orientation overlooking its adjoining neighbours' yards (after al-Hemaidi (1991)).

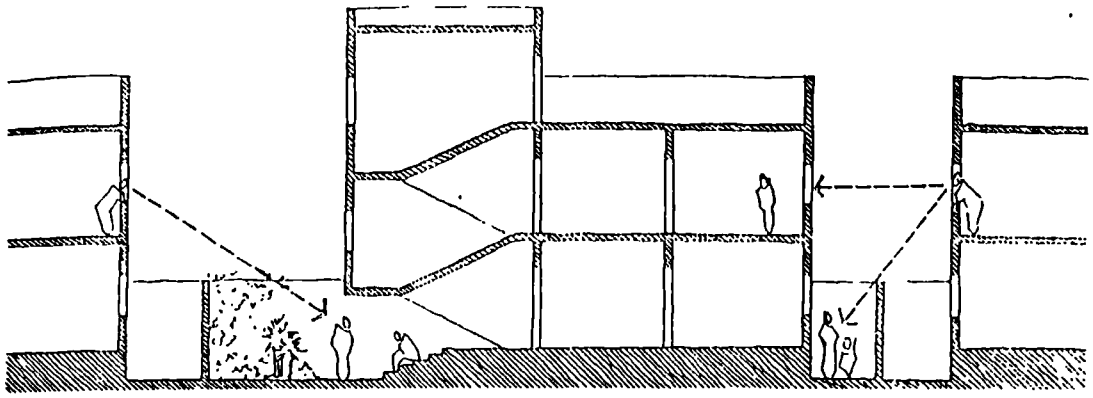

Figure 3-11: Overlooking violation between neighbouring villas, where residents can easily observe and overlook their neighbours' yards and windows.

Major cultural and climatic problems had emerged as a result of these new forms and regulations. Al-Hemaidi explained that these:

> "Regulations allow adjoining dwellings to open their windows outwards, constantly violating the privacy of open space surrounding dwellings, inhibiting the full use of these open areas for family activities in a society where privacy of family life, especially of women, is a vitally important issue."[61]

In Saudi Arabia, as in many Islamic countries, the family is still the basic unit of a society whose structure is greatly influenced by the teachings of its religion. The social life of the people remains very traditional, with most customs based on the teachings and rules of Islam. Thus, concern for privacy remains of major importance in the social life of the country.

According to Saudi Arabian ideals, privacy is one of the most desirable factors in an individual's life. The right of a family to have its complete desired privacy is an Islamic social requirement and is reflected in the traditional urban fabric and household architecture of Saudi Arabia. In accordance with this ideal, many attempts were made to improve the situation of privacy in contemporary

Saudi Arabian houses. The main design concept of these new houses or housing schemes is to provide each dwelling with privacy from overlooking neighbours and passers-by in the street.

The planning and designing of these houses and projects are all indicators of the importance of the privacy issue in Saudi Arabian's minds. The need for protected family privacy in a contemporary Saudi Arabian house is now a very recognisable planning and designing issue for Saudi Arabian planners, architects, government officials and the public. In short, the influence of religion upon all aspects of life and upon the attitude of the people is very strong in Saudi Arabia, and privacy remains a priority of the population in accordance with the practices of Islam.

3- 10 Conclusion

The term "Privacy" is used in many different fields of science. Each field defines privacy from its perspective, which is usually different from another field's definitions. Even in the same field, one researcher may tend to define privacy in a different way from another, because of differentiation in research purposes and methodologies. With this in mind, different types of privacy definitions were examined. Each definition was formed according to that field of science, or according to the purpose of that research.

In the light of these definitions, privacy in general terms is defined as "a set of mechanisms for controlling interaction". These control mechanisms include or exclude, according to a set of agreed upon roles, different individuals or groups, which can occur under specified conditions of place, time and occasion or situation. This general definition was used as a starting point with a more precise definition being formulated through the course of the research. Therefore, privacy

in this research is defined as "the protection of the dwelling and its residents from being violated by another's undesired visual observation".

Privacy is affected and formed by its influential parties and involvers. When a definition of privacy is needed, its influential parties and involvers should be identified first, and then a definition of privacy can be found and formed. For example, cultural norms and customs, family culture and background, family structure and family size, status and role relationships within the family, life cycle stage, age, sex and privacy-orientation of family members, time structuring, etc., all may, in complex ways, influence privacy and be involved in the forming of its perception.

Therefore, the definition of privacy depends on how a society understands and perceives it. Thus, the definition will vary from one society to another. Its definition in a society relates strongly to the cultural values and principles of that particular society, and does not need to be implemented or used in a different one, unless, of course, both of them carry the same cultural values and principles.

Yet, people and their circumstances change over time, therefore, their cultural values change too, even within the same region, people and society. People's perception of privacy will change along with these values. Privacy can also be said to vary over time, particularly when there is a change in individual and societal values, resulting in new, different ideas, images and attitudes. Therefore, to each society, in a given place and time, privacy may have a different meaning, which has to be firstly understood, and only then can it be safely defined.

Religion is considered an important factor influencing cultures, and Islam, in particular, has a very major effect on forming the cultural values of its followers. The discussion in this chapter found out that Islam plays a major role in forming the Muslims' perception and definition of privacy. This role is often

undervalued in the design of human settlement in Saudi Arabia, as well as in the Arab and Muslim world in general. The research findings of many researchers in Muslim countries show that privacy is very important to local people and is deeply rooted in their culture. These findings indicate that the highly significant value of privacy has very strong religious implications in Islamic culture.

In Saudi Arabian contemporary culture, privacy is considered to be a prerequisite when one is considering a house design. The right of an individual to have his privacy protected in his dwelling life is an Islamic social requirement, and is reflected in the traditional urban fabric and house architecture of Saudi Arabia. Islam, as both religion and culture, has a very strong influence upon all aspects of life and on the attitude of the people of Saudi Arabia, and privacy remains a priority of the population in accordance with the practices of Islam. According to this idea, many attempts were made to reduce the continuous violation of family privacy in contemporary Saudi Arabian houses. The main design concept of these attempts is to produce an urban fabric which provides each dwelling with protected privacy from being overlooked by neighbours or passers-by in the street.

Even in Western societies, the findings of social behavioural studies confirm the view that privacy is of an essential importance in social science. Although, it might be considered less important than in a Muslim society, it still ranks as an important requirement among the other social and physical environment needs. Nevertheless, many writers and sociologists, in Western countries, believe that the privacy issue has not been researched enough, and is undervalued in the stages of housing planning and design.

In conclusion, privacy cannot be defined without, firstly, defining its contexts, that is to say its society. Without having firstly defined a society and culture, privacy cannot be safely defined. The definition of privacy in a certain culture or society is determined by how that society or culture perceives the

functions and needs of privacy. Therefore, we could have as many definitions of privacy as we have societies. Thus any attempt to define privacy in a society must be made with a thorough understanding of the cultural background and its values, if it is to be complete and applicable to that society. Without this it would be considered worthless, or at least inapplicable to that society.

Chapter 3 Notes

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[9]. Young, 1978. p. 14.

[10]. Ibid. p. 14.

[11]. Ingham, L., "Privacy and Psychology", in Young, John B. (Ed.), Privacy, John Wiley & Sons, New York, 1978. p. 48.

[12]. Altman and Chemers, 1980. p. 77.

[13]. The crucial idea of Altman's and Chemers's framework is that privacy is a central concept that provides a bridge between personal space, territory, and other realms of social behaviour. In this model privacy is an interpersonal boundary regulation process by which a person or group regulates interaction with others. Privacy regulation permits people to be open to others on some occasions and to be closed off from interaction at

other times. Privacy is, therefore, a changing process whereby people attempt to regulate their openness/closedness to others.

[14]. Rapoport, Amos, "Human Aspects of Urban Form", Pergamon Press, Oxford", in Priorities for Environment Design Research, Environmental Design Research Association Publications, Washington, D.C, 1977. p. 289.

[15]. Rapoport, 1976. p.29.

[16]. Rapoport, Amos, "The Environment as an Enculturating Medium", Priorities for Environment Design Research, Environmental Design Research Association Publication, Washington, D.C., 1978.

[17]. Ibid., p. 7.

[18]. In another later study of Rapoport (1970a), he stated that privacy needs are also influenced by the social setting and the activity in which the individual or group is involved. He added that role, relationships, status and prestige, too, can influence privacy needs, and in this way they relate to privacy.

[19]. Hill, A.R., "Visibility and Privacy", in D.V.Canter (Ed.), Architectural Psychology, RIBA Publications, London, 1970. p. 41.

[20]. Ibid., 1990. p. 135.

[21]. Rapoport, Amos, House Form and Culture, Prentice-Hall, New Jersey, 1969. p. 66.

[22]. Altman and Chemers, 1980. p. 83.

[23]. Ibid. pp. 84-85.

[24]. Ibid. pp. 97-98.

[25]. Moore, Barrington JR., Privacy: Studies in Social and Cultural History, M.E. Sharpe, New York, 1984. pp. 5-13.

[26]. Ibid., p. 27.

[27]. Bahammam, Ali, An Exploration of the Residents' Modifications: Private-Sector Low-Rise Contemporary Housing in Riyadh, Saudi Arabia, University of Michigan, Unpublished Ph.D. Thesis, Michigan. 1992. p. 22.

[28]. Krissdottir, Morine and Simon, Joan, Shielding: People & Shelter, Toronto, Oxford University Press, 1977, p. 31. Cited in Bahammam, 1992. p. 14

[29]. Rapoport, Amos, "Sacred Places, Sacred Occasions, and Sacred Environments", Architectural Design, Vol. 52, Nos. 9/10, 1982. p. 75.

[30]. Rapoport, 1976. p. 29.

[31]. Vaziritabar, Shahram, Design and Privacy in Modern and Traditional Housing in Iran, Oxford Polytechnic, Unpublished Ph.D. Thesis, Oxford, UK, 1990. pp. 286-287.

[32]. Vaziritabar matched between this change and one which took place in the 17th to 19th century in Europe, with the difference that in the latter case it was a conscious decision to alter and modify the domestic design, but in the former it has been one of rapid, yet, unconscious change in response to rapidly changing social, political, economic, technological and other factors and circumstances in Iran.

[33]. He stated that: "It is generally held that it was Islam in the Middle East which adopted and modified the built form according to the philosophy, ideology, and the requirements of socio-cultural forces in Muslim life. It has been repeatedly argued that there has been a close correspondence between Islamic doctrines in Muslim life and characteristic patterns of traditional social organisation, way of life and social behaviour, and that these have been mirrored in the organisation of spaces in dwellings and their surrounding environments." Vaziritabar, 1990. p. Appendix 1.1

[34]. Hammam is the Arabic word for public bath, which was very well known in Muslim cities.

[35]. The Hanbali Jurists is one of the five schools of jurists that are common among Muslims today. The others are Maliki, Shafi'i, Hanafi and Jaffari. The first three, including Hanbali, are Sunni schools and the last is Shi'a.

[36]. Bahammam, 1992. p. 251

[37]. Vaziritabar (1990) stated that literature indicated that many features relating to this factor had been tracked back to pre-Islamic times. Veiling for instance was in practice before Islam among the Byzantinians and Persians. Moreover, veiling has not been used exclusively by Muslim women, and it has been customarily used in other religions or by other cultures throughout history, or even by the opposite sex, such as the Tuarq men (Tuarq is a nomadic tribe of people living in the southern parts of North African countries, and in the northern parts of the Sub-Saharan countries in Africa).

[38]. Abu-Lughod, Janet, "Contemporary Relevance of Islamic Urban Principles", in A. Germen (Ed.), Islamic Architecture and Urbanism, King Faisal University, Dammam, Saudi Arabia, 1983. p. 96.

[39]. Mernissi (1975) put the privacy between sexes in a spatial concept. She described Muslim sexuality as a "territorial one", i.e., a sexuality whose regulatory mechanisms consist primarily of a strict allocation of space to each sex and an elaborate ritual for resolving the contradictions arising from the inevitable interference between spaces. Apart from the ritualised trespasses of women into public spaces which are, by definition, male spaces, there are no accepted patterns for interactions between unrelated men and women.

[40]. Akbar, Jamel, **Crisis in the Built Environment: The Case of the Muslim City**, Mimar Book, Singapore. 1988. p.35.

[41]. Adam, Eltayeb E. A., **Culture, Architecture and the Urban Form: With Special Reference to Privacy; Omdurman, Sudan**, University of York, Unpublished Ph.D. Thesis, York, UK, 1990. p. 48.

[42]. Evans, Robin, "Figures, Doors and Passages", **Architectural Design**, Vol. 48, No. 4, 1978. p. 270

[43]. Ibid. p. 277

[44] This, in Evans' view, was consistent with the further development of the interpretation of privacy in a new sense, in which the purpose was not only a solution to the constant problem of inconvenience, but more importantly and fundamentally perhaps a way of fostering a nascent psychology in which the self was for the first time to be, not just at risk in the presence of others, but actually disfigured by them.

[45]. Madge, John, "Privacy and Social Interaction", **Transactions of Bartlett Society**, Vol. 3, Bartlett School of Architecture, University College of London, London, 1964-5. p. 130

[46]. For example, Altman and Chemers (1980) claimed that in present-day US culture we might 'drop in' to visit a close friend if we are in their neighbourhood, but this is usually not done at dinner-time, too early in the morning, or late in the evening.

[47]. Wills, Margaret, **Overlooking**, The Architects' Journal, No. 23, 1963. p. 1181

[48]. Willis gave a test on sociability, extroversion/introversion and neuroticism to everyone she interviewed. When she compared the two groups-those who were not particularly affected by overlooking and those who were affected to a greater or lesser extent-the results showed that the former were considerably more sociable, more extrovert and were more 'average' on the neuroticism score.

[49]. Wills, 1963. p. 1185

[50]. Cited in Pamir, 1979. p. 13

[51]. Kuper, L., **Private Housing**, London, Unspecified publisher, 1968. Cited in Madge (1964). p. 135

[52]. Edinburgh University, Architectural Research Unit, **Privacy and Courtyard Housing**, Edinburgh University, Edinburgh, 1968. p. i

[53]. Cited in Pamir, 1976. p. 22

[54]. Hill, A.R., "Visibility and Privacy", in D.V.Canter (Ed.), **Architectural Psychology**, RIBA Publications, London, 1970. pp. 39-40

[55]. Another study, carried out in the United States by Erickson (1964), also discovered that unexpected guests, and their corresponding intrusion, were less important when the intrusion involved the living room rather than the kitchen.

[56]. Adam, 1990. p. 89.

[57]. Adam claimed that the provision of security was one of the functions and needs of privacy. The Hopi Indians of North America are an example of this privacy function or need. They live in crowded garrisons with a very limited provision of inter-family privacy, but it was possible to regard the function of the garrison as providing a group privacy against their enemies.

[58]. There is no Saudi citizen who is not a Muslim. Although, there are 3.5 million foreigners of various nationalities and religions living and working in the country.

[59]. Altorki, Soraya, Women in Saudi Arabia; Ideology and Behaviour Among the Elite, Columbia University press, New York, 1986. p. 6.

[60]. Bahammam, Ali, Architectural Patterns of Privacy in Saudi Arabian Housing, McGill University, Unpublished MSc. Thesis, Montreal, 1987. p. 48.

[61]. Al-Hemaidi, Waleed, Comparison of Residential Satisfaction in Neighbourhoods Planned on Imported & Revived Traditional Planning Principles; the Case Study of Riyadh, Saudi Arabia, University of Sydney, Unpublished MSc. Thesis, Sydney, Australia, 1991. p. 2.

4 -

HOUSE FORM

Page

4 - 1 Introduction

House form is a variable that depends on several factors. These factors are discussed and analysed in this chapter, particularly the socio-cultural factors that are involved in shaping the house form. These factors are considered from the viewpoint of cultural origins, whether western or Islamic. This chapter will also contain a brief review of the principles and guidelines in Islamic Sharia'h that influenced the house form in traditional Muslim cities.

The second part of this chapter is devoted to the house form of the villa, because it is regarded as the most common type of house form for low-density single family houses in Saudi Arabian cities. Thus, its origin and meaning in past and present Western cultures and civilisation is reviewed. This is followed by an evaluation of how the villa form was introduced in Saudi Arabian cities, and its later development to be the dominant house form for low-density areas of these cities.

4 - 2 Socio-Cultural Function of the House

In the simplest sense, the house can be defined as a "shelter". Before taking this definition further, certain input needs to be defined in order to make the definition accurate and in context with the environment surrounding that house or shelter. Houses are sometimes built for protection from weather, animals, enemies or people. People of various socio-cultural backgrounds use and perceive their house differently, according to the values held by a particular culture or society.

The house is best understood as the system of settings within which a specific group of domestic activities occur. This type of definition gives flexibility and space for cross-cultural variety. Also, this definition offers a way in which house context becomes congruent with the socio-cultural values, preferences and needs of a given group of people. The system of settings can then be analysed in order to find out whether or not it is supportive of such a lifestyle for a certain group of people, whether it suitably expresses identity or attitudes, and so on.

Thus, house needs and definition must be seen in the broad context of the general environment. The diversity of socio-cultural values leads equally to various lifestyles, which in turn produce variations in house contexts congruent and supportive with these lifestyles. For example, as Oliver (1987) suggested, for some people a house is no more than a depression in the long grass or rough shelter made up of branches and leaves of a temporary nature. For others, houses are massive structures, finely wrought in durable materials and centuries old. It is these two faces of the house, as the place for very simple living and residing, or as the place - or even the structure - that is the focus of its inhabitants and surrounding people, which encompass the manifold cultural and material aspects of domestic habitation.

This contrasted relation of the two faces of the house develops from human needs and the requirement for shelter. This is illustrated by the satisfaction, first of basic human needs, followed by more secondary needs. For example, Cooper (1975) indicates that the basic human need of a house is for shelter. When this need has been satisfied, people become concerned with security. When this matter is solved, people start to think about the fulfilment of other aspects related to comfort and convenience. He explained, "there may be little concern for exterior aesthetics but considerable concern about having a house that is cosy and comfortable and easy to maintain. At the next stage in the hierarchy of needs, when comfort and convenience are taken for granted, the house is seen as a locale for socialising and self-expression. Finally, when all these previous needs are

taken care of, people become concerned about the aesthetics of their house and neighbourhood." [1]

Therefore, a house should not be seen or perceived only through its physical appearance, but rather through its spatial and symbolic characters and meanings, that fulfil and satisfy its inhabitants' needs and preferences. These needs and preferences can only be fully grasped through the understanding of the socio-cultural values of the house's inhabitants. These values are the key to the understanding of the reasoning and meanings of the house form and its spatial appearance in any setting.

4 - 3 Factors Affecting the House Form

The way a house is built is largely dictated by cultural phenomena. The house meets a wide range of complex needs and requirements for its residents; it is not just a physical structure. The cultural setting, in which the house is created, has a significant influence on its function and form. The form of a house differs from one place to another, because of different factors involved in shaping this form. According to Oliver (1987), certain environmental and cultural principles affect and shape the variety of house types and forms we have today. These include, for example:

> "economy and settlement types; material resources, both organic and inorganic; forms of dwelling, the technologies and processes by which they are built; climatic and environmental considerations; the way that space is organised and used within the dwelling to meet the demands of daily living; symbolism and meaning, craftsmanship and decoration; the impact of twentieth-century social change and its effect on the expanding cities; rapid urbanisation, and the problem of housing which now confronts the world." [2]

Thus, the great variety of house forms around the world, strongly indicates that it is not only site, climate or building materials that determine the house and settlement forms and patterns. Rapoport (1969) points out that many cases from different places around the world could be adduced to show that houses and

settlements "are not the result of physical forces, particularly since the form often changes in areas when physical aspects have not changed." [3] Therefore, under similar given conditions of climate, geographical location and building technology and material, what shapes the house form in the end is the culture of its residents. House form is not simply a result of a single factor, but it is the result of a range of socio-cultural and physical forces.

Max Sorre[4] used the term 'genre de vie' to describe and include all the cultural, spiritual, material and social aspects that affect the house form. Rapoport (1969), later on, acknowledged and further developed this term. He suggested the followings aspects, as some of the more important terms of the 'genre de vie', which influence the form of the human built environment, as also shown in Figure 4 -1:

(a) Some basic needs
(b) The family structure
(c) Privacy needs
(d) Position of women
(e) Social intercourse[5].

In addition to the importance of the privacy aspect itself, the last two aspects, as mentioned by Max Sorre, also concern the 'genre de vie' and involve, to a greater or lesser extent, the issue of privacy. For example, social intercourse will be affected by the perception of privacy in that society and the degree of importance attached to it. Similar remarks could be said concerning the position of women aspect. The cultural aspect is a crucial factor in the shaping of house form. Also, privacy is an important component of the cultural milieu, or genre de vie, of any society. Since cultural aspects are crucial factors in the shaping of the house form, it is possible to conclude that privacy has a significant influence over the house form.

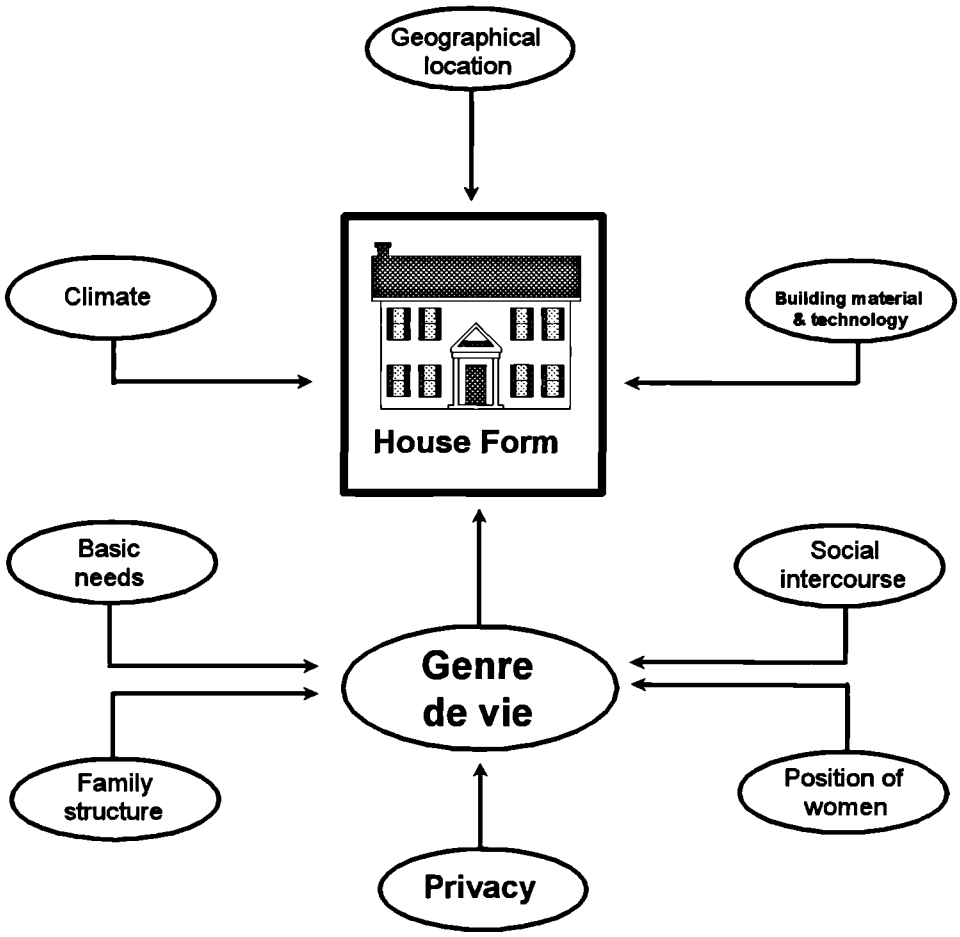

Figure 4 -1: The role of privacy in influencing the house form.

4 - 4 House Forms and Privacy

As privacy is affected by the house form or type, the degree of achieved privacy in a house differs according to that house form. Vaziritabar (1990) made a comparative study between the desired and the achieved privacy among the residents of two types, or forms, of houses in Tehran, Iran[6] (traditional attached courtyard houses and modern apartments). He found that the extent of match between states of desired and achieved privacy differed according to dwelling type: "the match between privacy needs and design (desired) as well as privacy achieved related to dwelling type and varied between new apartments and traditional houses."[7]

The effect of privacy does not incorporate the house form only, but also extends to the urban space or built environment as a whole. Chermayeff and Alexander (1963) have suggested a model of six domains for a hierarchical organisation of urban space, based on the hierarchy of privacy. The progression is:

"1. Urban public	- the places and facilities in public ownership (e.g. roads. paths. etc...)
2. Urban semi-public	- the special areas of public use under government and institutional controls (e.g. public schools, post offices, etc...)
3. Group public	- the meeting ground between public services and utilities and private property requiring joint access and responsibility (e.g. garbage collection, utilities control, etc...)
4. Group private	- residential components under control of management acting on behalf of private or public interest for the benefit of tenants or other legal occupants (e.g. community gardens, playgrounds, etc...)
5. Family private	- the spaces within the private domain controlled by a single family that are devoted to communal family activities such as eating, entertainment, hygiene, and maintenance.
6. Individual private	- the "room of one's own", to which individuals may withdraw from other family members."[8]

Not only does the definition, function and importance of privacy differ from one culture to another, but also the above six progressions might differ in relation to that culture. For instance, it is possible to find the distance or the level of differentiation between the "group private" and the "family private" is very large, as in Islamic culture for example, whereas this distance is much less in, for example, American culture. Likewise, in one culture the "group public" and "group private" may be almost one progression and it would be very hard to differentiate between them, whilst in another culture they may be clearly distinguished. Nevertheless, these six progressions form a general framework of the privacy hierarchy and its influence on the built environment. On the basis of this hierarchy, the breakdown of urban spaces would be perceived comfortably.

A large number of scholars, such as S. al-Hathloul, H. Fathy, B. Hakim, J. Akbar and many others, who write about urban environment in the Islamic world, propose an urban space hierarchy similar to the one put forward by Chermayeff and Alexander. Furthermore, they emphasise the importance of this hierarchy and its role, not only in shaping the house form and its adjoining buildings, but also in the organisation (on a larger scale) of spaces and social relationships in the neighbourhood and the town or city.

Madge (1964) substantiates this view; he lays great emphasis on the importance of privacy in modern house design, particularly in industrialised countries. He believes that the home must make allowance both for privacy and for social interaction, and he believes that this constitutes one of the central criteria of house form and design. He based his argument on the nature of modern society, which demands that

> "the great majority of us should spend a substantial amount of time in social interaction, and in fact for many people whether they work in factories, shops, offices or for that matter in university departments, it is virtually impossible to hide themselves away on the job, even for short periods. The consequence of this is that we have to find our privacy during leisure time."[9]

In order to find this privacy in an accepted and desired manner and form, Madge stressed, it is only the physical setting of home life that makes it possible to retire, to be undisturbed and not violated by the intrusion of others. He also explained that when residents' achieved privacy does not meet their desired privacy, they tend to change and manipulate their house form and its surrounding built environment in an attempt to reach their desired privacy and to decrease the tension resulting from this mismatch between their achieved and desired privacy.[10]

On the other hand, just as too little privacy is a problem, too much privacy can also cause problems. Kelvin (1973) identified both excessive privacy and lack of privacy as sources of stress. In the design of a house, if the achieved privacy is greater than one desires (whatever the degree of privacy wanted may be), then

feelings of isolation and loneliness will prevail. Willmott and Cooney (1963) in a sociological survey found that too much privacy in housing caused much criticism and dissatisfaction among users. Many people complained about being too 'cut off' from the outside. Also, if the achieved privacy is less than one desires, then feelings of over-crowdedness will prevail.

These feelings of isolation or crowdedness are the results of a mismatch between the desired and the achieved privacy in a house design. Pamir (1979) blamed architectural professions for their "treatment of privacy as a function of the type and scale of buildings or site layouts only, and not of type of human groups and their differences"[11]. Vaziritabar (1990) goes further and claimed that:

> "Privacy has never been examined nor studied as an inter mediating construct in the relationship between people and built environment in general, and in particular in social-spatial relationship in housing design. It has often been studied as an attribute of people or of buildings."[12]

It is fair to say that studies focusing specifically on privacy and house form and design are rare and very recent. Only a small number of writers have discussed this approach of examining privacy. Willems (1963), Madge (1964), Pamir (1978), and Hathout (1979) from Western countries, and Adam (1990), Vaziritabar (1990), Bahammam (1992), al-Saed (1992) and a few others from Muslim countries, have all studied and discussed some aspects of privacy as an intermediating construct with relation to house form and design and people.

However, leaving aside the authors stated above, all the other studies concerning house form and privacy reviewed by this research either do not adequately search and emphasise the magnitude of the privacy problem in housing design, or have been bound to only certain aspects of privacy. The most important shortcoming of these theoretical studies is that they have treated privacy only from the viewpoint of the presence or absence of physical locks and barriers. Also, a major weakness or limitation of many of these studies appears to lie in the assumption that the impact of design on behaviour, as well as the impact of

behaviour on design, is similar for all people and under all circumstances, such as climate, religion, age, income, tradition, etc. . In other words cultural, personal and physical setting differences have tended to be underestimated, if not ignored.

4 - 5 Islam's Influence on Traditional House Form

The "right" and "obligation" of a Muslim family to live "enclosed" in its dwelling has led to a clear separation between "public" and "private" life in the Muslim community. This characteristic of a Muslim family is considered to be one of the most significant social characteristics of Islamic communities. Also, it has affected significantly the physical form and design of the traditional Muslims' house. Adam (1990) explained that the Arabic word *Sakan*, which is used to define the house is related to the word *Sakina* meaning peaceful and holy. Also, the word for women *Harim* is in turn related to *Haram* meaning sacred area, that specifies the domestic (family) area of the house, which is considered to be primarily the domain of women.

Islam is known to have a great influence on the architecture and planning of the cities that came under Muslim control. It was identified as a major contributing factor to privacy pattern and concealment, which has significantly affected house and settlement forms.

As Rapoport extensively argued and examined in detail, "house form is not simply the result of physical forces or any single causal factor, but is the consequence of a whole range of socio-cultural factors seen in their broadest term."[13] Islam's philosophy, ideology and law of conduct have been repeatedly considered to affect and shape the characteristic patterns of social organisation, way of life and social behaviour of Muslim communities, and these factors have been mirrored in the organisation of spaces and forms of houses and their surrounding environment.

The traditional Muslim houses have a clear distinction between public and private lives. For a Muslim, home life symbolises the private or internal side *Batin*, while the public life of a man (profession, socialising, etc.) represent his external part *Zahir*. An important key in understanding this relationship between *Batin* and *Zahir* and its reasoning can be found in the Holy Quran, and specifically in verses 4 and 5 of Sura XLIX, whose meaning is as follows:

> "The interior of your house is the a sanctuary; those who violate it by calling you while you are in it do not keep the respect which they owe to the interpreter of heaven. They should be patient and wait until you leave your house, decency demands it; but God is All-forgiving. All-compassionate."

This relationship between *Batin* and *Zahir* has been pointed out by Hakim (1986) as one of the essential values in Islam. For example, he explained that "internal goodness and well-being are emphasised and arrogance discouraged."[14] The writer then concluded that the attached courtyard house and its aggregate organisational pattern is the most suitable house form that could respond to and satisfy this relationship and perception of the house. This most probably explains the reasons why the external house walls in traditional Muslim cities are generally kept simple and relatively bare with few openings. By contrast, the courtyard, as the focus of the daily activities and central space of the house, is usually decorated, whenever it is affordable, "to a high level of artistic sophistication, despite the fact that it is accessible and enjoyed only by the occupants, and occasionally their relatives and close friends."[15]

Therefore, the attached courtyard house provides the suitable house form for this concept of the Muslim family and *Batin* lifestyle. Its inward-looking orientation protects the residents from being seen by outsiders in the streets or in adjoining dwellings and at the same time protects neighbouring houses from observation by nearby residents. In other words, the attached house form provides two ways of privacy protection, for the house's residents as well as the protection of neighbours' privacy, see Figure 4 -2.

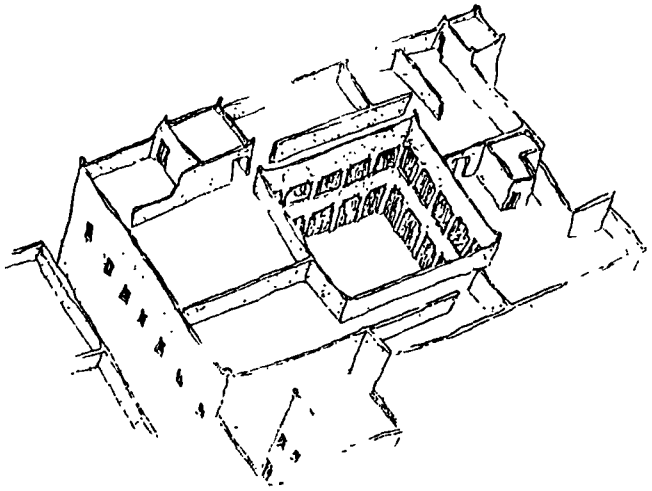

Figure 4 -2: The inward-looking orientation of the attached courtyard house.

The attached courtyard house is also very suitable climaticlly to most of the Muslim regions. Those regions are mostly characterised by hot dry summers and mild winters. For example, al-Hemaidi (1990) stated that the courtyard plays a major role in the dwelling's micro-climate which provided illumination, ventilation and thermal regulation. In summer, and during daytime, a harmony of lush greenery provides shade and a source of humidity in the hot dry air; at night, because of the great density of cool air, it sinks to the courtyard, and forces the lighter hot air to escape or mix with it. The dense and the attached house walls, expose only the rooftops and part of the facade to the harsh heat of the sun, thus reducing the heat gain by the house walls.

4 - 6 House Forms in Saudi Arabia

4 - 6 - 1 Traditional House Form

As discussed in the earlier chapter on planning regulations, the house form in Saudi Arabia went through three planning eras. The first stage was the traditional house form. This house was built from the available building materials and techniques. There is more than one traditional house form in Saudi Arabia. Depending on the location of the country's regions, the inhabitants of each region

adapted a similar or different house form that would suit their needs, style, experiences and the surrounding environment.

Bahammam (1992) described the general concept and process of building these traditional houses, and stated that they were "built with local materials in an incremental building process by the local master builder in collaboration with the users themselves, and according to the users' own needs and norms."[16] However, these traditional forms of house in Saudi Arabia can be classified into two groups, the attached courtyard house and the multi-storey Hijazi house, or what Fadan (1983) calls, the Makkan house.

The latter house form is mostly found in the western region of the country, along the coastline of the Red Sea and the mountains behind it. The best example of this house form is found in the cities of Jeddah, Makkah, Madina and others, see Figure 4 - 3. This house is characterised, as Fadan (1983b) stated by:

> "tall, multi-storey buildings embellished with several screened windows projecting from massive wall facades. The upper parts were usually built with brick, and were often white washed. Makka's traditional house is a row house with at least one side of the house adjacent to a neighbouring house. A central courtyard is rare."[17]

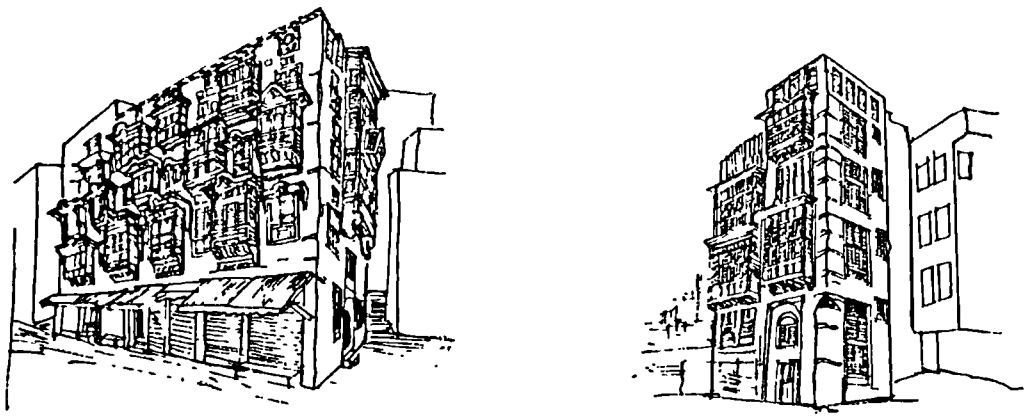

Figure 4 - 3: Traditional houses of Makka, after Fadan (1983b).

The attached courtyard house is easily the most common form in other regions of the country, as well as in the Arab-Islamic world in general. This type is mostly known as the courtyard house, or in some cases, the Arab house. Al-Hemaidi (1991) describes this form of house as irregular with a courtyard and inward orientation, see Figure 4 - 4. He adds that:

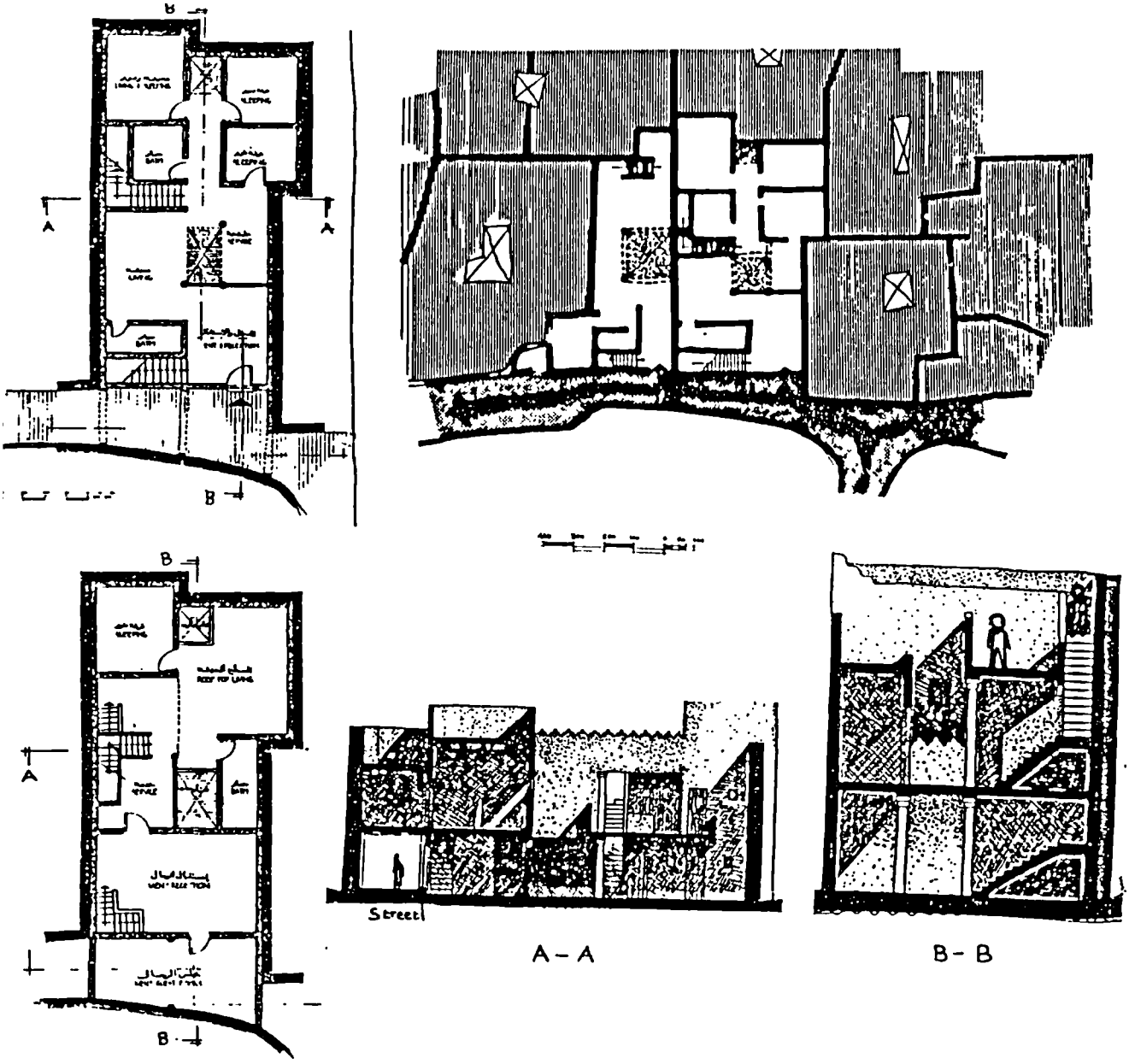

Figure 4 - 4: Example of attached courtyard houses in Riyadh, after Mousali.

> "the house is usually oriented inward, opening all windows on the courtyard for ventilation, light and maximum privacy, which allow for building on property lines. The urban form is mainly an irregular one because of several reasons; firstly, houses are built on vacant land or any leftover space rather than on the street line, and secondly, building a house usually starts with building two or three rooms surrounding a courtyard, and later on when more rooms are needed they can be built on any vacant space, sometimes on part of or over the street or even on neighbouring vacant space."[18]

Today, most of the built areas of the old parts of Saudi Arabian cities, which contain these traditional houses, have been demolished, and were replaced by modern concrete high-rise buildings and shopping centres. Even those which were not demolished are no longer inhabited by their original residents, if they are inhabited at all; the residents have moved to new parts of their cities.

4 - 6 - 2 Transitional House Forms

The second stage is the transitional era. This era witnessed a house form that was very close to the attached courtyard house form but constructed with new building materials, and with modern sanitary and electricity services. Usually, foreign and newly introduced decoration and colours were added to the facade of these period houses, replacing the traditional external decoration, sky-line of roof-tops and golden-brownish colours. In terms of form and layout, the transitional house maintained the main form and layout of the traditional one, with mainly minor modifications.

The neglect of the traditional building materials and techniques in these houses was not particularly due to their inappropriateness. Rather, it was mostly due to the rapid increase in demand for large numbers of houses by the population in a short space of time. Also, another important reason was the social perception of modernity and progress as somehow linked to building with modern materials, such as cement blocks, reinforced concrete and cement plaster with different colour paints. These building materials were perceived by the public as a standard of acquiring and showing modernity and wealth. Like owning a car, refrigerator

or electric fan, living in a house made from these modern building materials and colours could be added to these standards of modernity.

4 - 6 - 3 Contemporary House Forms

With the rapid urban growth during the 1960s and 1970s, various imported house forms were introduced into Saudi Arabia. Generally speaking, these forms can be classified into three groups. Firstly, the villa as the form for the low density-single family house. Secondly, the medium density apartments buildings, which contain 2-3 storeys and walk-up apartments, containing 4-8 flats. Thirdly the high density apartment building, consisting of multi-storey buildings from 5 to 30 storeys in height, with shopping arcades usually located on the ground floor.

Unfortunately, there are no available statistics that could show the relative quantities of these three house forms. Nevertheless, it is estimated that approximately half the number of dwellings in Saudi Arabia are of the villa form. The other half is divided between both types of apartment buildings. The proportion between the two apartment buildings depends on the policy of land-use adopted in that city, but generally the ratio is something around 1:3 (high rise-density : medium rise-density).

However, Saudi Arabian families generally prefer to live in villas, rather than apartments. Hence, the vast majority of villas in the country are occupied by Saudi Arabian families. This was shown in the survey questionnaire carried out by al-Hemaidi in 1990, in one of Riyadh's villa suburbs (King Fahad suburb). The survey results showed that 93% of the villa residents in that suburb were Saudi Arabian, and only 7% were non-Saudi nationals. Furthermore, the apartment flats are mostly occupied by foreign families or groups working in Saudi Arabia.

The villa as a house form, and its introduction to Saudi Arabia has been discussed earlier from the planning regulations aspect. However, in the following sections, this villa form is discussed and examined both in Saudi Arabia and in the countries where it originated. During this discussion, the purpose of building and living in a villa house is reviewed and analysed, in order to understand how this purpose has changed and developed.

4 - 7 The Villa Form of House

4 - 7 - 1 The Meaning and Origin of the Villa in the West

The essential form of the villa has remained unchanged for over two thousands years, since the time when it was defined by the patricians of ancient Rome. As Ackerman (1990) stated, it was satisfying a need both "psychological and ideological" of the city dwellers, who conceive of the countryside not only as an area for possible investment, but also as a place for amusement, relaxation, rest and study.

The very structure of Roman civilisation, based on agriculture, favoured the development of the villa and the ideals connected with it. Ackerman indicated that the countryside, through the settlement of the centurions and land reclamation, and crossed by an efficient road network linking the various regions of the empire, enjoyed an organisation that permitted the villa form to extend itself everywhere, along the North African coast, in France, in England and along the Adriatic, in Istria and Dalmatia, see Figure 4 - 5.

The word 'villa' as used in English and Italian derives from the same Latin word as the French *Ville*. Furthermore, Holberton (1990) explained that:

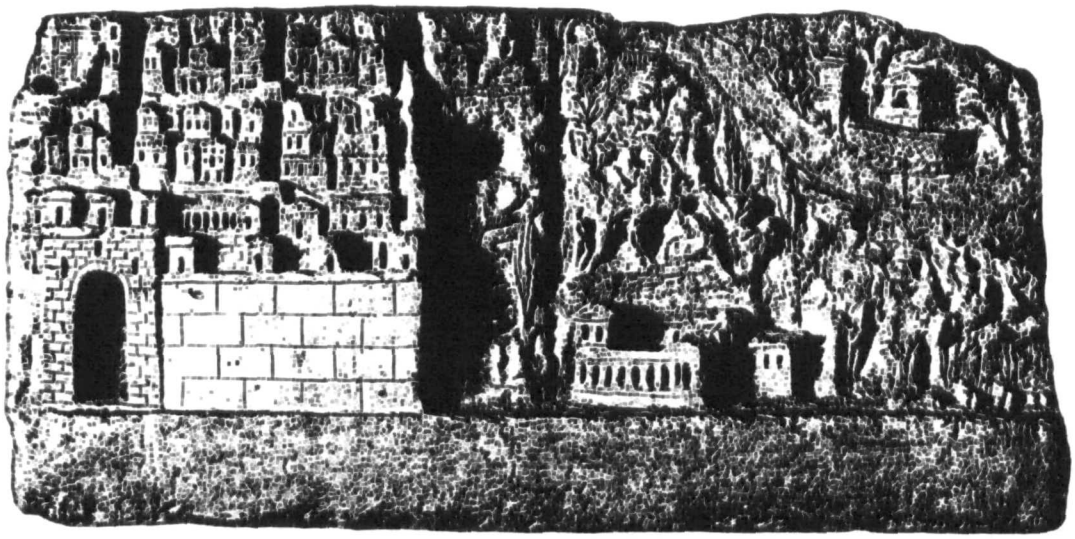

Figure 4 - 5: Cast of a Roman relief showing a suburban villa. After Ackerman (1990).

> "as far the etymology of Latin word *villa*, it is probably a corruption of *vicula*, which is diminution of *vicus*, meaning both a street and a hamlet, either in the country or in a town. A 'villa' is at root a group of buildings, a habitation. In classical usage it had come to mean an estate in the country in particular, but it described the estate more than its being in the country."[19]

The views of Ackerman (1990) and Helas (1991) confirmed the Holberton definition of the early 'villa'. However, Helas added that from Roman times up to the Renaissance the concept of the villa was bound up with the notion of a life in the country. But that was not necessarily the same concept as developed or understood later on. Ackerman claimed that villas have not always been near to the cities on which they depended, even in earlier

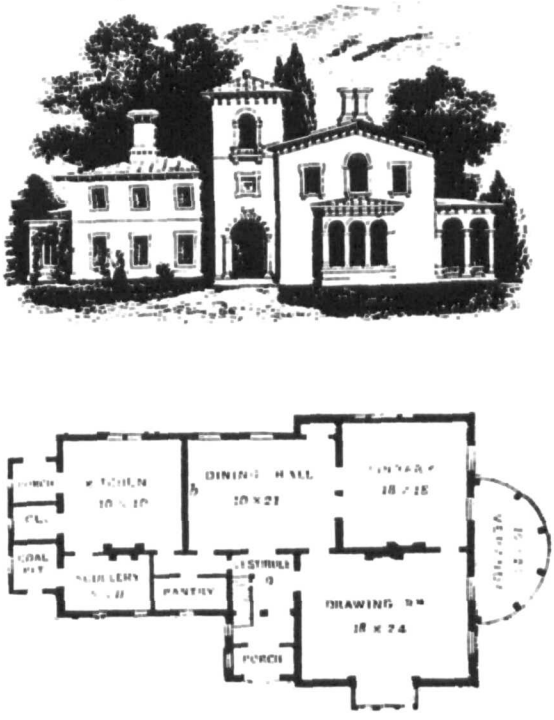

Figure 4 - 6: Andrew Jackson's Douminy, a villa in the Italian style, an example of the 19th century villas, 1850. After Ackerman (1990).

Figure 4 - 7: Drayton Hall, near Charleston, S.C., 1738. After Ackerman (1990).

times. Colonial agricultural centres, whether in the Roman Empire or in the 19th century southern United Sates, were settled in areas mainly devoid of urban development and became in themselves industrial and cultural centres, and often large in scale, see Figures 4 - 6 and 4 - 7.

Moreover, towards the end of the 19th century, the word 'villa' lost the formal association it still had before that time, as "something vaguely Italianate, a compact squarish, small block of building probably with a low-pitched pyramidal roof and perhaps a terrace or balcony. But in English, even before it became definitively suburbanised, the word has always meant nothing grand or glamorous, but a modest or middle-class building."[20]

Ackerman (1990) considered the middle of the 19th century as the most radical mutation in the history of the villa. After that period, the concept of the villa became democratised and accessible to the body of lower-middle class city dwellers, mainly due to the rapid growth of centralised cities, and the development of a fast mode of transportation (the train). Ackerman added that once the villa had been introduced in this manner as a commodity, it was a short step to its manufacture by contractors and developers for the open market, and

another short step to its mass production on the fringes of large cities, and finally even in the smaller ones. In the late 19th century, the garden-city movement appropriated as much as possible of villa ideology into its vision of urban and rural values. In conclusion, the term 'villa' came to be utilised and attached to any detached or semi-detached dwelling, be it in the city, suburb or country, with little more open space around it than dwellings in the densely populated streets of the urban centre.

Regarding the architectural character of the villa today, Ackerman (1990) stated that it rarely exhibits an effort on the part of the proprietor or the architect to conform to past custom; more typically, it strains to be the paradigm of the most up-to-date architectural style. Moreover, the villa is less fixed in form than most other architectural types. This is mainly related to the fact that the requirements of leisure lack clear definition, compared to others.

In the present century, Frank Lloyd Wright and Le Corbusier are considered the most influential contributors to the villa tradition. This was through the large number of residence or villas they designed throughout their professional careers (for example, the Villa Savoye, by Le Corbusei and Bear Run, by Frank L. Wright). Their attention focused on the task of establishing an equilibrium between nature and culture responsive to their own and their contemporaries' feelings and convictions, see Figures 4 - 8 and 4 - 9.

According to Ackerman, their predecessors over the centuries had invented solutions which fell eventually into two categories. The first have clung to the concept and the mathematical harmonies of Greek and Roman architecture, whereas the second have mainly been consciously anti-classical. The work of Le Corbusier falls into the first category, while Wright comes in the second. Nevertheless, both architects were attracted by, and experimented with, the opposite pole.

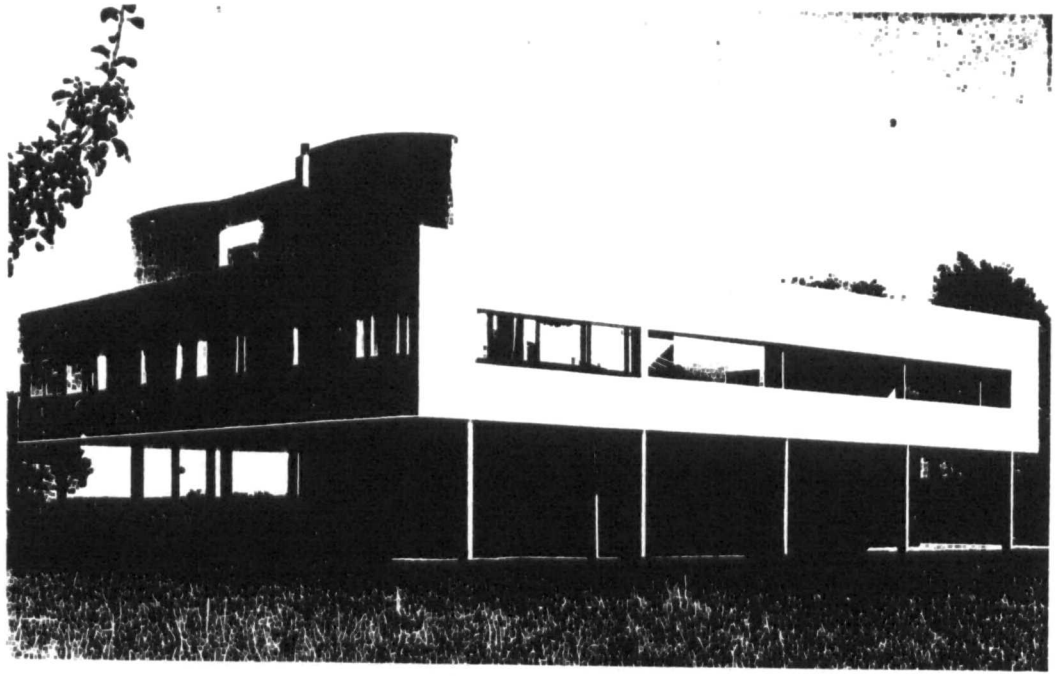

Figure 4 - 8: Villa Savoye, Poissy, by Le Corbusier, 1928-30. After Ackerman (1990).

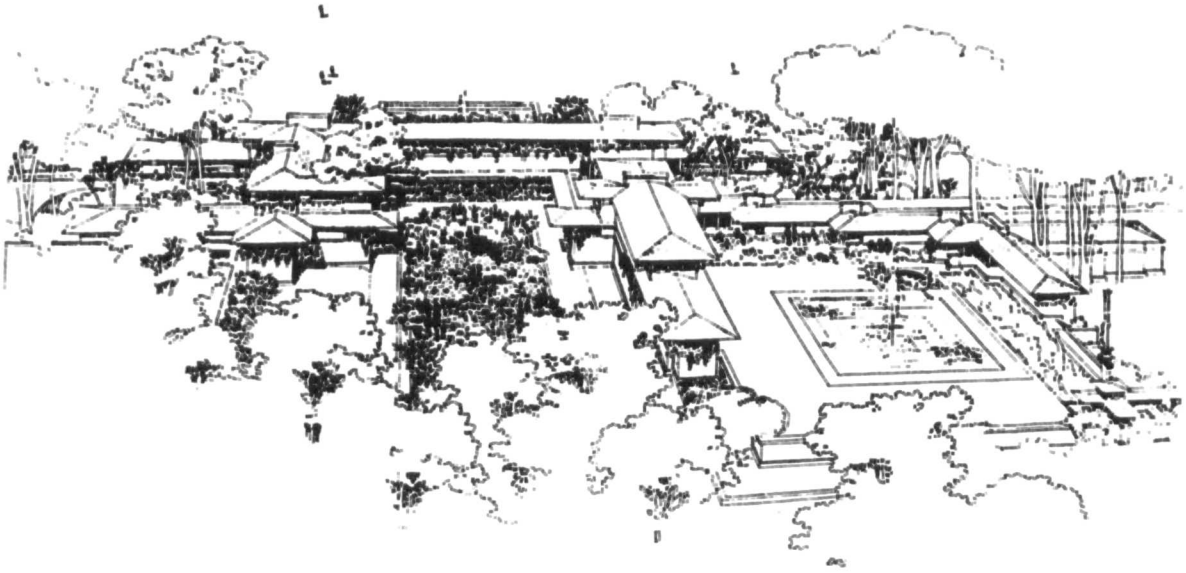

Figure 4 - 9: Frank Lloyd Wright, project for the McCormick residence on Lake Michigan, 1907. After Ackerman (1990).

However, today's villa designers are no longer motivated by the pastoral images of the landscape and country life inherited by earlier generations from the classical poets and also, for a time, from the painters of landscape (such as Claude Lorrain and Poussin). Ackerman analysing the relationship between today's villa

and its predecessors stated: "it seems that the traditional ideology that imputed spiritual and moral values to country life has finally been lost, and with it a link between the villa and the social, political and economic life of our time."[21] As today's villas in Western countries are nothing more than a detached or semi-detached house in the suburbs, the only difference that could distinguish today's villa from a city house, is its relatively large size, in terms of both built-up space and open space (in the form of gardens or yards surrounding the dwelling).

4 - 7 - 2 Introduction of the Villa to Saudi Arabia

As was discussed in the earlier chapter on Planning Regulations, the first time the villa house form was introduced to the country was by ARAMCO (The Arabian American Oil Company) in the eastern region of Saudi Arabia. In 1371/1951 ARAMCO initiated a programme to accommodate its Saudi Arabian employees in major urban communities, rather than in scattered oil-field camps. This programme was called the ARAMCO Home Ownership Plan.

This plan, as Fadan (1983a) indicated, provided the company's employees with an interest-free housing loan, which was paid back by monthly deductions from these employees' salaries. The land for this project was supplied by the Government to ARAMCO, who later planned and sub-divided this land according to a grid-iron street plan with square lots. The terms of the loans indicated that the employee had the right to choose his own preferred design and contractor. The problem came, as al-Hathloul (1981) explained, when the plan asked the employee to submit a design for his proposed house, in order to qualify for the loan. Also, this design has to be constructed according to the submitted plans, without any major alterations. But:

> "in the early 1370s/1950s, there were very few architects in Saudi Arabia other than ARAMCO's. Therefore, Saudi employees had to rely on Company architects and engineers to produce these designs. In order to alleviate the pressure, the Company had several design alternatives out of which the employees could choose. Put forward by architects and engineers who were not familiar with the culture and tradition of the area, the design, of course, relied

> heavily on the background of the architects and produced, not too surprisingly, the typical suburban detached house; a type that is closer to an International Mediterranean than to a local house."[22]

This detached house was nothing other than the villa, see Figure 4 - 10. This newly introduced house form was very soon to be copied and followed in other parts of the Eastern Region's main cities, particularly Dammam, al-Khobar and Rahimah.

Figure 4 - 10: A typical detached dwelling, or villa, built through the ARAMCO Home Ownership Plan, in Dammam (1370s/1950s). After Faden (1983a).

Another major step in introducing the villa to the country, came when the Government decided to initiate and establish the al-Malaz district in Riyadh in 1377/1957. The villa was chosen to be the ideal house unite, and al-Malaz was the first example of the villa house form in Riyadh, and the first example outside the Eastern Region. As the residents of al-Malaz were high-ranking Government employees, and were regarded as the initiators and leaders of modern lifestyle and taste by the public, both the Government officials and the public saw the villa as the ideal house form for the country and its population.

Therefore, the final and most crucial step in the history of the villa in Saudi Arabia came when the villa of al-Malaz was institutionalised and enforced as the

standard house form for all low-density single family neighbourhoods. This was through the 1380/1960 Circular of the Deputy Ministry of the Interior for Municipalities, which set the planning regulations that had to be followed in the design and building of all low density-single family dwellings. The regulations of this Circular enforced the villa as the only acceptable house form, through the setback, site coverage and height requirements. This form was then introduced and implemented by all municipalities in every city, town and village in the country.

4 - 7 - 3 The Villa in Contemporary Saudi Arabian Cities

During the 1960s and 1970s Saudi Arabia witnessed rapid urban growth in every city and town in the country. This urban growth increased tremendously the number of villa dwellings, as well as their proportion to other types of dwellings in these cities and towns. According to al-Hussayen (1980), the villa became the most desired housing type in Saudi Arabia. Many researchers indicated cultural conflict resulting from this villa form. Al-Hemaidi (1991), for example, indicated that the out-looking villa allowed all adjoining dwellings to open their windows outwards, constantly violating the privacy of open space in surrounding dwellings, inhibiting the full use of these open areas for family activities in a society where privacy of family life, especially for women, is a vitally important issue.

Al-Hussayen explained that the yards surrounding the villa replaced the courtyard in the traditional house. Moreover, in order to protect the yards' privacy from people in the streets, a high concrete fence surrounded the villa and its yards, see Figure 4-11. Al-Hussayen then added that "the villa design is virtually uniform in each city and each neighbourhood: reception and dining are in the front, followed by the kitchen. Bedrooms are usually located at the back or on the second floor."

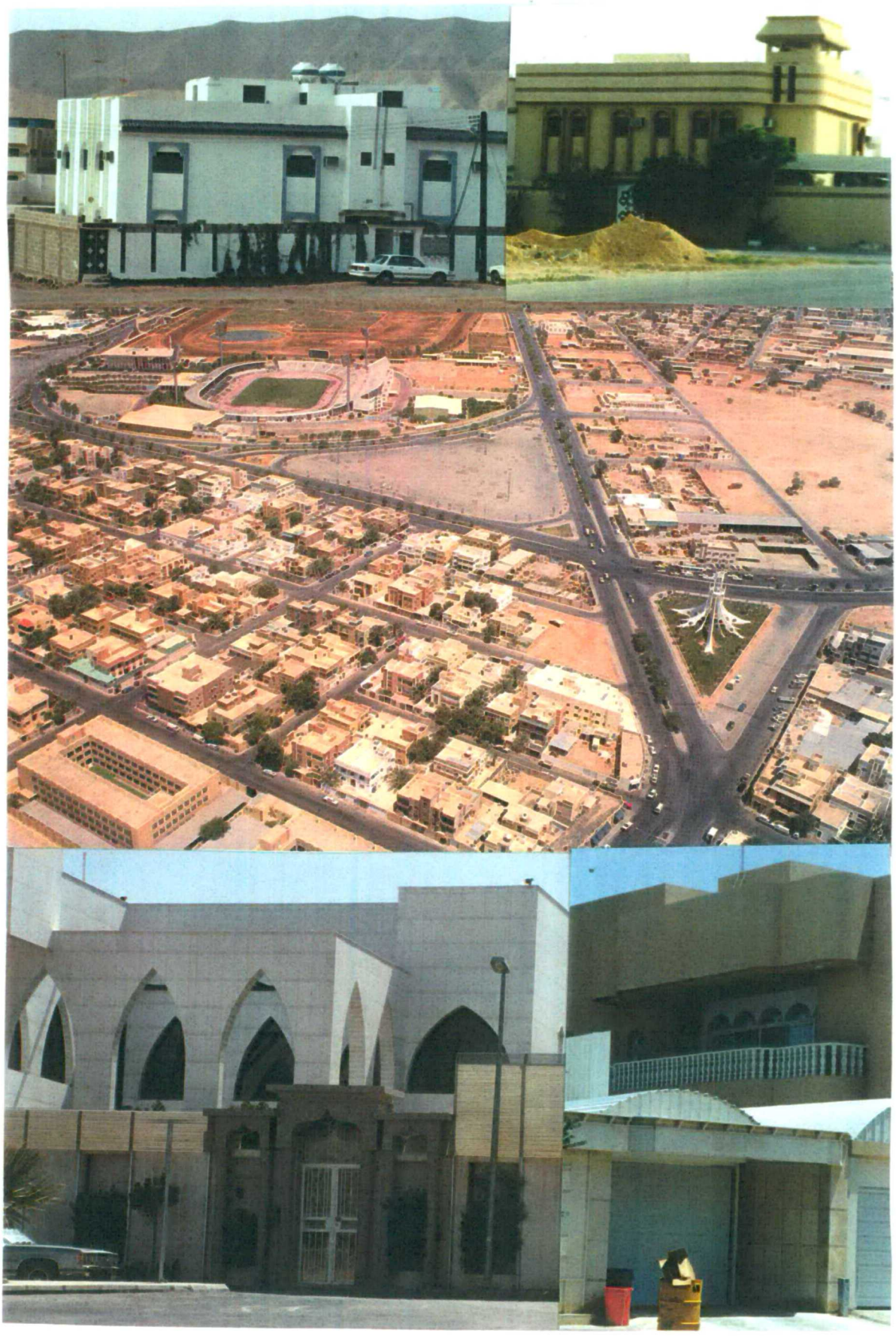

Figure 4 -11: Example of modern villas from different cities in Saudi Arabia.

The evidence of these privacy problems in the villa dwellings of Saudi Arabia is clear from the al-Saati (1987) study of villa residents in Riyadh. He stated that:

> "More than two-thirds of the residents (70%) thought that their yards and balconies were exposed to their neighbours' view. Some residents were forced to close some of their exposed openings permanently, while others used other methods or devices in order to maintain some level of privacy in their living environments. These devices ranged from a piece of material to a corrugated metal sheet depending on the individual's ability and perception of the severity of the problem."[23]

On the same issue, Bahammam (1992) expressed his thoughts regarding the violation of residents privacy in the villa house type in Riyadh. He studied the reasons behind residents' modifications of their villas, where he stated that :

> "I was not surprised to learn that lack of privacy is the strongest complaint when analysing my informants descriptions. Even before I met them and listened to their experiences, I had the feeling that lack of privacy would be one of the major problems of the contemporary villa-type dwelling. Walking down the street of any low-rise residential neighbourhood is enough to make the residents' dissatisfaction with their level of privacy readily apparent because the modifications they have made to rectify the problem are so overt."[24]

He concluded his remarks by stating that he found the different residents' concern for privacy in their dwellings an indication that this was still a fundamental concept of their socio-cultural life, see Figure 4 -12. Many of the residents' alterations were the result of their desire for privacy. He added that the residents, in their explanations, described their decision to make alterations and additions to their homes as precautionary measures against unnecessary social problems that might arise due to a lack of appropriate privacy. Their use of strong and varied expressions and terms such as "to prevent evil", "to avoid the problem", "to cut the bad road", "to close the door to trouble", and "prevent Satan's seductions" denotes the importance of dwelling privacy in their lives.

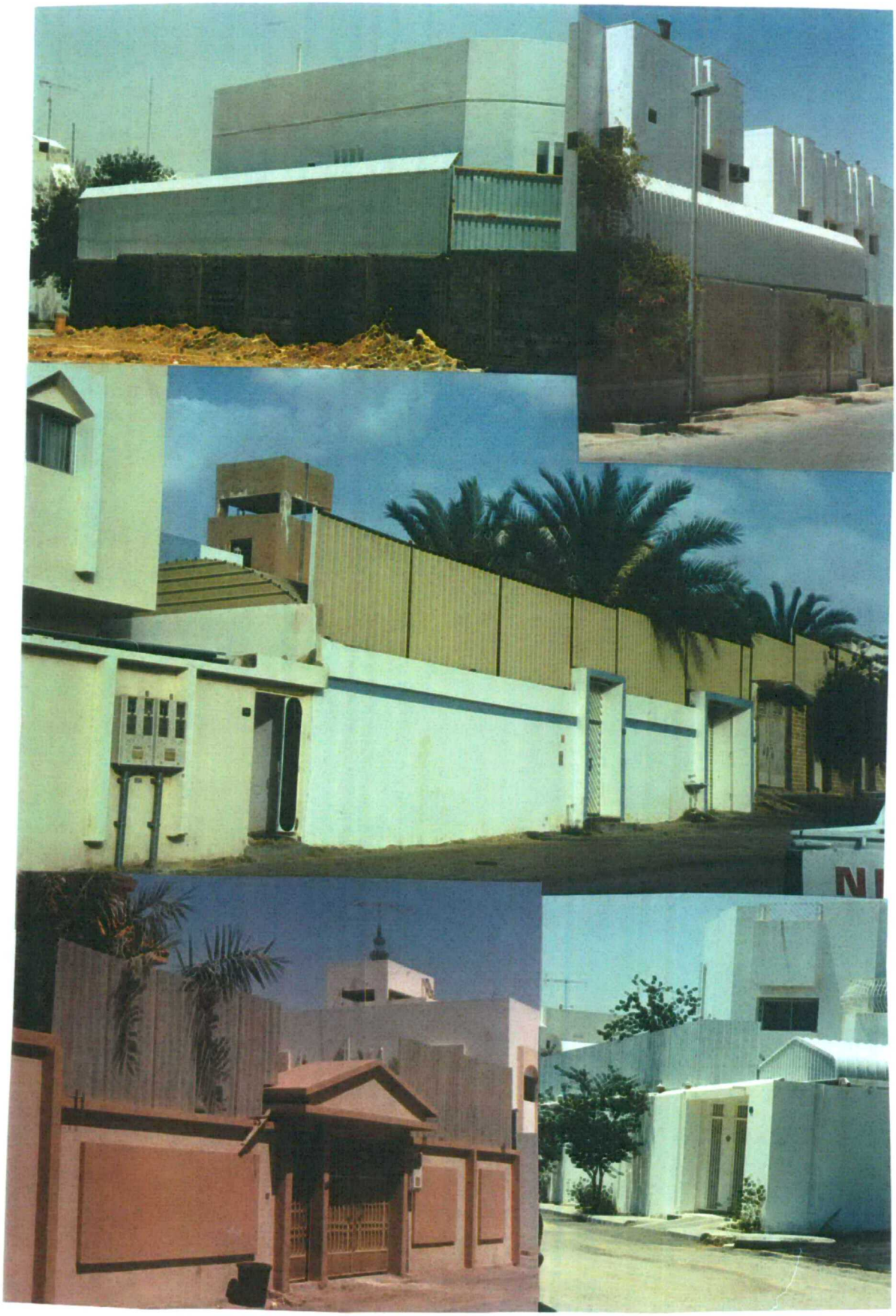

Figure 4 -12: Examples of modern villas' facades covered with extra fences in order to provide protection form neighbours' overlooking, from different suburbs in Riyadh.

The following explanations of Bahammam's residents are the best illustration of the residents' view of their dwelling privacy and its importance:

> "- We have good and well-known neighbours, but this building is rented each time to different people and this window is directly overlooking us (the yard), so we have to erect an extra partition on the yard wall to **prevent evil** and to relax. (Mr. Saiaf)
>
> - This (extra) metal partition is very important. We added it to protect our family.... This partition will protect the privacy of the whole yard and will prevent anyone seeing them (the women) when entering or leaving.... Of course, one can not guarantee who will dwell next to him or what they have in their mind, but if he adds the partition, he will **avoid the problem** (Mr.Baker)
>
> - The look is one of the reasons to build a relationship. For example, suppose I looked over at my neighbour's (dwelling) and I saw a girl or a woman. The Satan will start to picture her for me as a sweet and beautiful thing, so I will start to think of making some kind of relationship. So, by erecting an extra partition, that one added to his house, he cancels this situation and cuts the bad road from the start. By doing so, one closes troubles' door. (Mr. Yousef)"[25]

In the earlier part of his valuable study, Bahammam pointed out another important issue encouraged by and resulting from the villa form. He pointed out that "although the aesthetics of external appearance were not important to the residents of Saudi traditional dwellings, the contemporary detached villa type dwelling with its outward-looking concept has brought with it a need for more emphasis on the external appearance of the building. The outward concept of the villa-type dwelling has encouraged a sense of public display and individual identity. Contemporary dwellings have become a symbol of status, of achievement, of social acceptance to many of the residents." [26]

However, despite this new pattern in housing development, it is clear that Saudi Arabians are still trying to maintain their privacy in their houses as far as possible. When residents have the opportunity to become involved in the design process of their own dwelling units, they try to arrange for the kind of indoor

space which will satisfy some of their privacy requirements. On the other hand, when they do not have the chance for such involvement and the dwelling unit design does not satisfy their needs, they rearrange the use of existing spaces or add new spaces, if that is possible, to suit their needs and provide the needed privacy.

Nevertheless, given that society takes time to digest changes, social changes require a slower pace than physical or other changes, and lag behind them acting inevitably as a brake on the evolutionary processes of society. In Saudi Arabia, as in many Islamic countries, the family is still the basic unit of a society whose structure is greatly influenced by the teachings of its religion. The social life of the people remains very traditional, with most customs based on the teachings and rules of Islam. Thus, concern for privacy remains of major importance in the social life of Saudi Arabia.

4 - 8 Conclusion

House form is a product of culture. Building materials and techniques, climate and geographical location are the other main components involved in shaping and forming the external appearance of a house. Indeed ,the cultural and social aspects of the residents also has a significant influence on the house form. The house form of a certain culture reflects its socio-cultural beliefs and values.

According to Max Sorre and Amos Rapoport, privacy is an important component of the five categories forming the 'genre de vie', or the socio-cultural values involved in shaping the house form. Furthermore, privacy is also an effective factor involved in two out of the five categories of 'genre de vie', which indicates further the significant importance of the privacy concept in influencing house form in a certain society. Where a house form does not meet the desired

level of privacy, its residents alter their behaviour, or the physical aspects of house form and design. On the other hand, if the achieved privacy is more than the desired level of privacy, that would lead to feelings of isolation and loneliness. Therefore, just as too little privacy is a problem, so is too much privacy. Hence, a house form and design should produce a balanced degree of privacy, equal to its residents' needs and desires, not more than this and not less.

During the development of traditional Muslim cities, the inhabitants found that the attached courtyard house is the most suitable house form, allowing them to live in their houses according to Islamic teaching and guidelines. As family privacy in Islam is an important matter, the in-looking house form (where most rooms lookout onto a central yard) provides the protected house environment that a Muslim needs to fulfil his/her religious beliefs or ideology, and prevent neighbours' overlooking and privacy violation. That explains the domination of this form of house in the majority of Muslim cities.

In the second half of this century, and due to the discovery of oil in Saudi Arabia, the villa house form was introduced for the first time, to accommodate Saudi Arabian families working for the ARAMCO oil company in the Eastern Region. A few years later, the villa was introduced to al-Malaz in Riyadh. This had a major effect on both the public and authorities' vision of the modern house form in Saudi Arabia. The public were impressed with the villa and perceived it as the ideal living place that demonstrated and fulfilled ideas of modernity and progress. The authorities saw the villa as the example of a modern lifestyle that they wanted their people to enjoy, as well as exhibiting the modernisation of the country's cities.

Since 1380/1960, the villa house form has been chosen as the standard low-density single family dwelling, and was introduced to all cities and towns in Saudi Arabia. What was not seen at that time, was the cultural conflict that the villa would have with its inhabitants' requirements. As house form is an

expression of the socio-cultural values of its inhabitants, to take a specific house form from one setting and impose it onto another public, means imposing a foreign culture's values on that public.

Also, when the authorities chose to introduce the villa, and the public accepted it without expressing dissatisfaction, both authorities and public thought it was just like importing and acquiring other modern equipment or commodities, such as a car, refrigerator, electric lighting, radio, etc. They did not realise at that time that importing and imposing a foreign house form would carry and lead to more socio-cultural consequences than introducing a car or electric fan. As the traditional attached courtyard house is the most suitable house form for the residents of Saudi Arabia, from both the climatic and socio-cultural aspects to replace this house form with a less suitable one, has led to climatic and cultural problems.

Although, the climatic problems can be solved by the modern technology of air conditioning (though with high running and maintenance costs), this modern technology was not able to solve cultural problems, nor did the inhabitants change their lifestyles and adapt their behaviour to suit the new house form and its cultural aspects.

Therefore, the end result was that the achieved privacy of the villa form did not meet the residents' desired privacy. This has led to two things, first the residents have attempted to modify the physical components of their house form and design, and secondly, they have changed their behaviour to avoid causing problems, or at least to reduce their likelihood. The residents' attitudes and their consequences are surveyed and analysed in the second part of this research.

Nevertheless, and regardless of which attitude the residents may adopt, the problem will remain. Moreover, the continuous presence of the problem means either the residents will not utilise their houses fully, or the appearance and the

houses' physical aspects will be modified and changed, leading to a different house form than the one originally intended to be implemented by municipal authorities.

Chapter 4 Notes

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[10]. Madge's argument is supported by other writers' opinions and findings, such as Pamir (1978), Vaziritabar (1990), al-Hemaidi (1991), Bahammam (1993). Vaziritabar, for example, concludes his survey findings by stating that "when privacy of the setting does not match the privacy wanted by residents, then users through selective use, manipulation and structuring of space and physical features as well as modifications to behaviour, try to achieve and maintain what they regard as appropriate patterns and degrees of interaction and privacy. In other words, when design is not guided by the user's privacy needs, it would be highly probable that; i) there would be a mismatch between original design and use of the dwelling; ii) resulting alterations to space or to behaviour might not produce the desired privacy; and iii) in the latter case discomfort might be experienced." (Vaziritabar, 1990. p. 142).

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Part Two

5 -

SURVEY DESIGN AND METHODOLOGY

Page

5-1 Introduction

This research contains two interrelated parts: a theoretical study and an empirical investigation. This chapter brings these two parts together. In the former chapters details of the development and construction of the conceptual framework of the research were established and presented. This chapter sets out the refined problems, formulates the research questions, and describes the field survey programme, the development of its methodology, the procedures involved and the data collection and analysis.

Also, the selected cities and suburbs and the bases of their selection are stated in this chapter, as well as the pilot questionnaire distribution, analysis and co-operating modification to the final questionnaire. The computer statistical software programme used in entering and analysing the questionnaire data is also explained and discussed.

5-2 Survey Research

5-2-1 Research Questions

Based upon the propositions drawn from the research hypotheses and methodology (chapter 1), the study and research of planning regulations (chapter 2), privacy conception and perception (chapter 3), and house form meaning and villa development (chapter 4), the hypotheses were translated to produce several research questions. As the general hypotheses of the research cannot be surveyed empirically as they stand, these research questions form the basis of the information and data needed to support the hypotheses. These questions fall into 5 groups, which are as follows:

1- How important is privacy in residents' opinions?

This is measured through two aspects: how often the residents use their overlooked yards and windows, and the erecting of physical structures to protect their yards from neighbours overlooking.

2- How do the residents perceive and define their privacy?

The factors affecting privacy perceptions and definition are as follows:

- The characteristics of the overlooking person (sex, age, relation to residents, etc.).
- The characteristics of the overlooked person.
- The place where overlooking takes place from (street, first floor windows, rooftop, etc.).
- The overlooked place (yard, sitting room, bedroom, etc.).
- The activity the residents were doing when overlooking took place.

3- Are the residents aware of the effect of the house form and planning regulations on the privacy violation in their houses?

This is measured by assessing the awareness of residents regarding the planning regulations implemented on the residents' houses, particularly the setback and site coverage requirements.

4- What is the residents' preferred house form?

This can be ascertained by showing and explaining to the residents several house forms and finding out which form they would prefer to live in. The residents' opinions and knowledge regarding the effect of the house form on the level of overlooking should be found out.

5- Are the above opinions and preferences affected by the residents' characteristics and background?

All the previous opinions and preferences should be examined across all aspects of the residents' characteristics, such as age, income level, education, size of urban centre (etc.). This aims to find out if these characteristics have any influence on the residents' opinions.

5-2-2 Questionnaire Design

According to the former research questions, the final form of the questionnaire was classified into seven parts. These seven parts or sections represent the five research questions plus one section on the general information regarding lot dimensions and features, while the last section consists of brief drawings of the house layout and elevations. The seven sections are as follows:

5-2-2-1 General Information Regarding the House

The first question concerns the dimensions of the lot, yard width, fence height, number of storeys and the size of neighbouring buildings. This is followed by questioning whether there is an extra fence constructed on top of the original fence. If the answer is yes, then there are some questions regarding the fence's height, when it was built, who took the decision to build it and for what reasons.

5-2-2-2 Residents' Use of Yards

Four identical sections were provided for each yard in the house. Each section contains several questions regarding the residents' use of that yard, by whom and how often and when, presented in a table to be filled in by the interviewer. The table is followed by other questions concerning the overlooking

situation of the yard, by whom it is overlooked and how often this overlooking occurs.

5-2-2-3 Yards and Windows Overlooking

The first part of this section contains questions concerning which yard/s is/are the most/least useful, and the reasons for this. This is followed by two questions concerning whether any of the yards are used for male or female sitting and socialising on a fine day. The aim of such a question was to discover whether the weather has any effects on yard use, and also to check whether any of the yards are used by residents at all. This is followed by a group of questions about the use and overlooking of the rooftop. The second part consists of several questions in the form of a table, regarding the use and overlooking of the sitting room, living room and bedroom windows in the house.

5-2-2-4 Residents' Perception of Privacy

Four questions formed the body of this section. The overall aim of this section was to formulate a framework of how the residents define their privacy, and what factors affect this definition or perception. The first concerns the residents' reaction to a hypothesised overlooking situation. The second and third are to find out if the place where overlooking was done and the activity during that overlooking have any affect on privacy perception. The fourth question is to assess the degree of privacy violation regarding the identity of the person overlooking and being overlooked.

A demonstration board was made specifically for the purpose of the fourth question. To ask the respondent directly how he would feel if a neighbour overlooked his wife or sister would be considered impolite and perhaps insulting in a conservative society such as Saudi Arabia. Therefore, a method had to be found in order to obtain this information without provoking the respondent and

making him feel offended, as this would result in losing his confidence and co-operation. A demonstration technique was, therefore, designed and made for this question. It consisted of two villas drawn on a foam board, where a side window of one of these villas overlooks the front yard of the other villa. This window and yard have one sliding slice each, where four separate photos are stacked on each slice. These four photos were of a middle-aged man, an elderly man, a middle-aged woman and a child, see Figure 5-1.

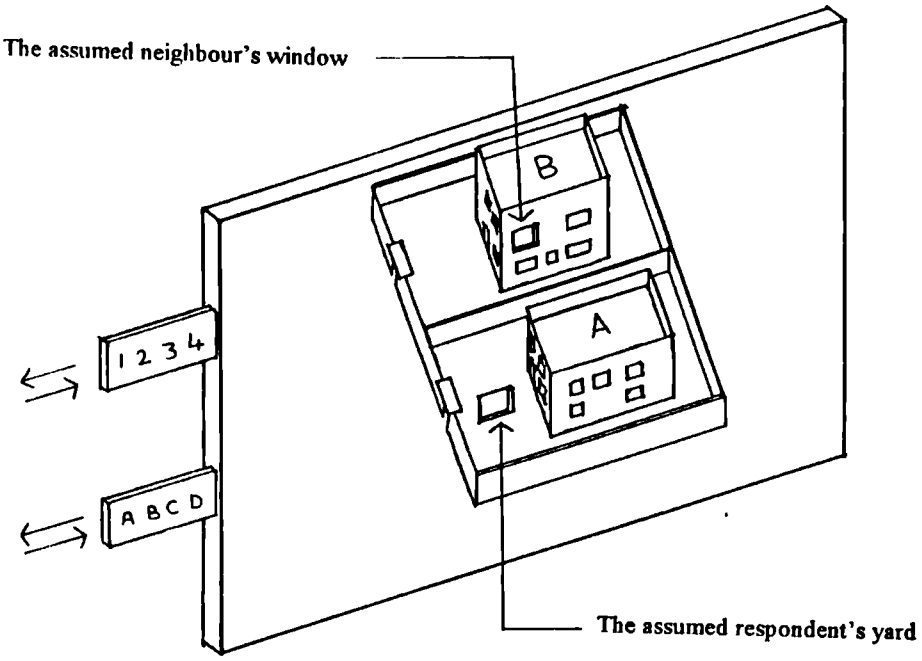

Figure 5-1: The demonstration board for the assumed respondents' yard, overlooked by a neighbour's side window, where villa A represents the assumed respondent's house, and villa B the neighbour's house. The four photos (young man, old man, young woman and a child) on each slide give 16 overlooking situations.

The respondents were then asked to imagine a hypothetical situation of overlooking. This situation assumes that the overlooked house is the respondent's, and the other is a neighbour's house with the side window easily overlooking the respondent's front yard if somebody looked out from it. He is then asked to assume that he is sitting alone in his yard, and that his middle-aged male neighbour is overlooking him, apparently intentionally. The respondent is asked to describe this overlooking violation using a scale of 6 descriptions of this

overlooking violation (1: very strong, 2: strong, 3: medium, 4: weak, 5: not regarded as a violation, and 6: do not know).

The slice of the neighbour's window is then pushed slightly inside so the photo of the old man replaces the middle-aged man, and the respondent is again asked to state his opinion regarding this overlooking violation. This slice is again pushed to show the photo of the middle-aged woman, then the child, and the respondent is again asked for his opinion. Having covered the four situations, the slice of the assumed respondent's yard is pushed to show the photo of the old man and the same four overlooking situations are considered, then the same procedure is followed for the middle-aged woman and the child in the respondent's yard. In the end, this will result in 16 situations of overlooking, with an overlooking violation description for each situation.

Using this demonstration board method made the illustration of these sensitive questions less provocative and offensive, as it would appear systematic and not personal to the respondents. This will effectively decrease the risk of losing the respondent's confidence and co-operation, as was proved to be the case when the questionnaire was conducted.

5-2-2-5 Awareness of Planning Regulations and Preferred House Form

The first part of this section asks the respondent the reason for building his house with yards surrounding it. The question was presented in an open-ended form, in order not to influence the respondent's answer, as well as to welcome any ideas or opinions the respondents may have. Furthermore, where the respondent indicated the planning or municipalities' requirements as one of the reasons, he was then asked to state the setback requirements applied to his house, to find out the degree of his knowledge of the planning regulations.

In the second part, the respondent is asked to imagine that for some reason in the future he decided to demolish this house and rebuild it again, and there were no setback regulations required by the municipality at all. The respondent is then shown three models of house forms: a villa, a courtyard villa, and an attached house with internal yards. The respondent was asked to choose his preferred form, and to add any alterations or modifications he might like, see Figure 5-2.

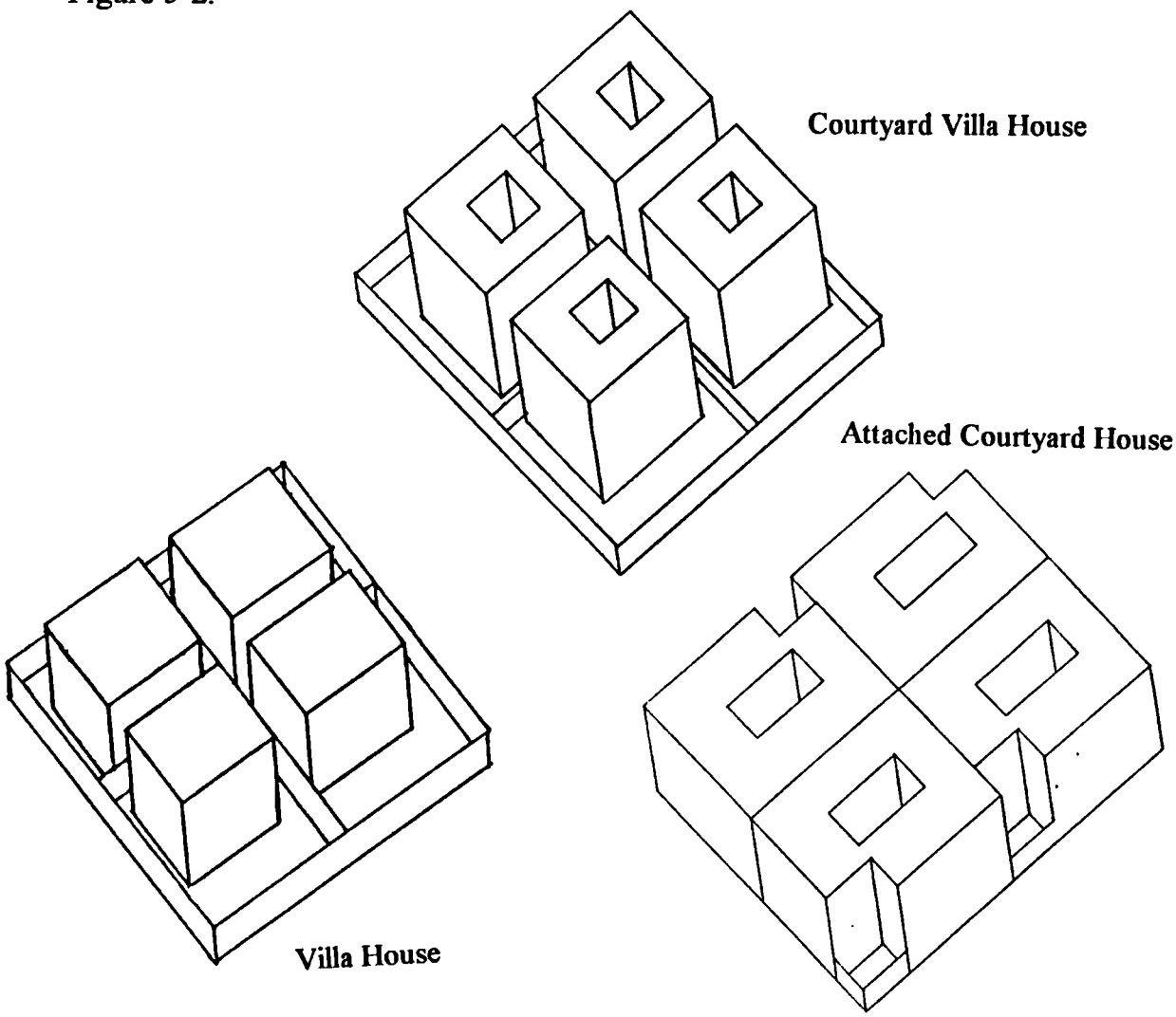

Figure 5-2: The three models of house forms shown to the respondents.

After the respondent had chosen his preferred house form, he was asked to comment on two question-statements. Both statements were intended to find out if the respondent knew and agreed that the setback requirements have increased the overlooking violation between houses, and also to establish if the respondent

believed or knew that the attached house form is less exposed to neighbours overlooking than the detached house with yards surrounding the house. These two question-statements were carefully put *after* the respondent had already chosen his preferred house form, in order not to affect or influence his choice of any form.

5-2-2-6 Personal Characteristics of the Respondents

General questions regarding the respondent's age, education, household size, experience of travel, etc. were asked in this section. The original questionnaire included a question asking the respondent's annual household income, but this question was omitted after the pilot questionnaire, for reasons specified later (in the pilot questionnaire section). The respondent's household income was instead assessed from indirect questions, and by adopting a weighting method and formula, which are explained in the pilot questionnaire section.

5-2-2-7 The House's Physical Characteristics and Its Surroundings

Two pages were left clear to draw draft sketches of the house's layout and elevations, with relation to its surrounding buildings. Also, any notes or comments on the house and the interview could be included in this section.

5-2-3 Method of Data Collection

As stated in the introductory chapter, the method chosen for collecting survey data was through the conducting of a questionnaire. This questionnaire would be conducted on the chosen sample of the survey population, through administrative techniques and procedure that is discussed in the following sections.

5-2-4 The Target Population

The focus of this study is the planning regulations concerning the villa dwellings in Saudi Arabia. Therefore, the target population of this field survey is the residents of the villas in Saudi Arabian cities and towns in general. Because it would be impossible to survey all the villas in all the cities in the country, three cities and seven residential suburbs were chosen for this survey. The basis for selecting these cities and districts is explained in the following section.

5-3 Selected Cities and Areas

5-3-1 Criteria for Selection

The criteria followed in selecting the cities and districts was based on the following principles:

a) As is usual for individual and Ph.D. thesis surveys, the limited financial and time resources play a major role in determining the place and size of the target population and sample. In the case of this research, the time allocated for the field survey was 5 months in total. The financial resources available for the survey were determined by the relatively limited budget provided by the researcher's sponsor (King Saud University, Riyadh), which placed financial limits in planning the field survey.

The budget granted by the researcher's sponsor for the field survey did not allow the mobilising and employment of additional interviewers to participate in conducting the questionnaire. Thus, the cities, districts and sample were selected and defined according to the available financial and time resources.

b) The other basis followed in selecting the cities was to represent a large, medium and small urban centre.

c) The familiarity of the researcher with the selected cities, and the availability of written material on them were important issues for consideration when choosing the cities.

d) Certain districts were selected to represent the social pattern of Saudi Arabian urban society. The criteria for selection involved mainly income level and, to a lesser extent, the educational background of the residents.

According to these criteria of selection, the following three cities and seven districts were selected:

5-3-2 RIYADH

The city was selected as it is the largest urban centre in Saudi Arabia (with a population of more than 2.5 million). Also, it was the first city in the country to utilise the villa form and adopt it for its residential districts. Moreover, there were several studies on the city's urban development available for this research.

Four districts were selected in Riyadh. This selection was based on choosing districts that could represent the largest possible social groups of the city. As there were no statistical data available to indicate the residents' income in these districts, the judgement of their characteristics was made according to land and house prices, consultation with real estate experts and the familiarity of the researcher with these areas. These four districts or suburbs were as follows:

5-3-2-1 King Fahad Suburb

This suburb was chosen as one of the suburbs of middle age and a representative of mostly middle-income residents, with a few higher income ones. Also, there were two available studies that reviewed this suburb's characteristics, al-Bothie (1986) and al-Hemaidi (1991). This suburb is located 8-10 km. north of Riyadh's centre, and was released to the public in the late 1970s, with a total area of approximately 400 hectares and 2800 lots with an average area of 600 sq. m. The whole suburb was planned to be for low density-single family dwellings, except for the lots on the four streets surrounding it and another four main streets penetrating it, which are medium density with mixed use (except for one street on the western border of the suburb, that is for high density mixed uses). This suburb, however, represents the standard density and land-use allocation for most modern suburbs in the country, see Figure 5-3 for a plan of this suburb.

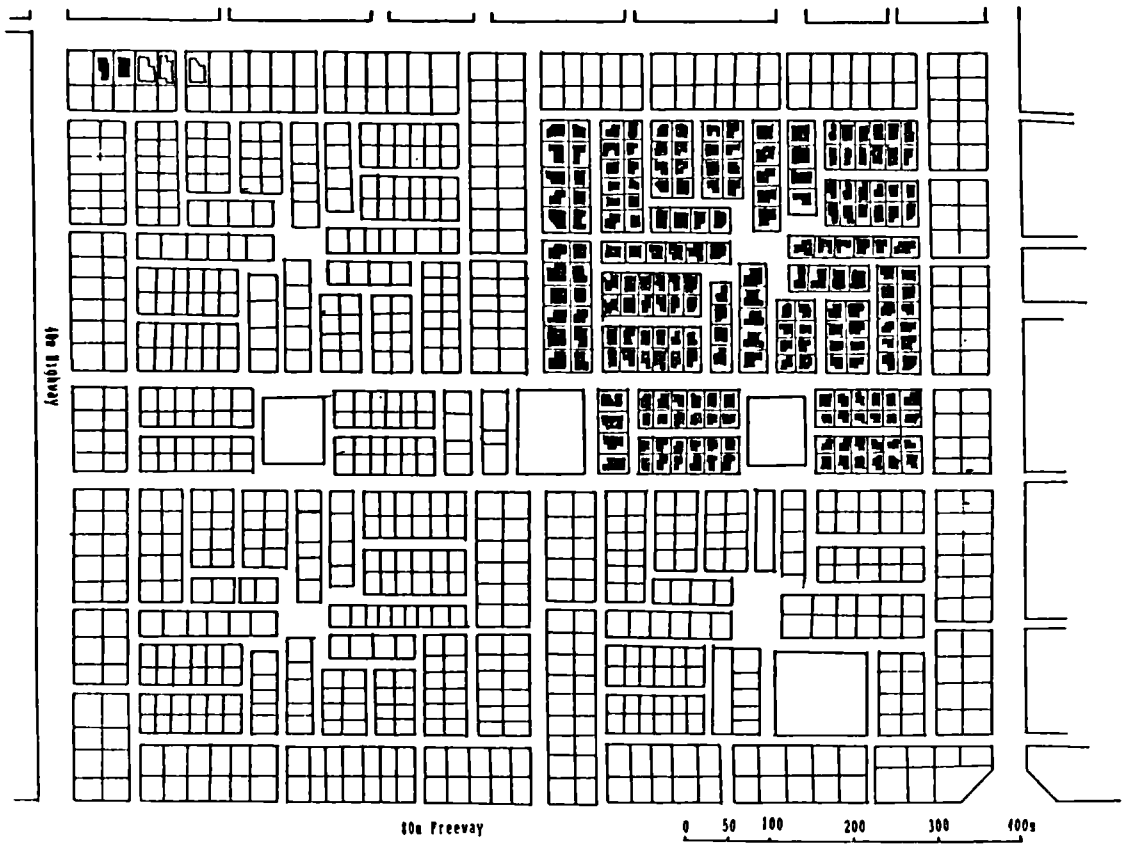

Figure 5-3: King Fahad Suburb, Riyadh (one quarter of the whole suburb).

5-3-2-2 Al-Rayan

This suburb was chosen to represent a higher proportion of high-income residents than in King Fahad suburb besides, of course, the middle-income ones. Al-Rayan is located 10-12 km east of Riyadh centre, and was released to the public in the early 1980s. The total area of the suburb is similar to King Fahad suburb, but with an average lot area of 750 sq. m.

5-3-2-3 Al-Shifa

This suburb is located 8-10 km south of the city centre, and is today considered one of the newly released suburbs. It was released during the late 1980s. The total area of the suburb is much larger than of al-Rayan or King Fahad suburbs, approximately 700 hectares. The average lot area in al-Shifa is 600 sq. m. and its residents are believed to be mainly of middle-income with a proportion of lower-income residents.

5-3-2-4 Al-Erija

This suburb is unique, due to the unusual planning regulation policy adopted in al-Erija. The policy was proposed by the Revised Master Plan of Riyadh prepared by SCET International in 1981, which was discussed extensively in Chapter 2 (the planning regulations chapter). This policy adopted a different setback policy, which required that houses must be built with no side setback, resulting in the two sides attached house form.

The suburb is located 8-10 km south-west of Riyadh centre. The total area of al-Erija is approximately 1200 hectares, about three times the size of al-Rayan and King Fahad suburbs, and consisting of three parts; west, middle and east

Erija. The average lot area is 400-420 sq. m., as it was originally planned to be distributed among the limited income citizens. It was released to the public in the late 1970s, and it is believed to contain mostly middle-income residents, but with a higher proportion of lower-income ones than all the other selected suburbs from this city.

5-3-3 TABUK

This city was selected for two reasons; as a middle-sized urban centre (approximately 300,000 inhabitants), and due to the familiarity of the researcher with this city's urban development. The villa was introduced to Tabuk around the early 1970s. Two suburbs were selected from Tabuk, one for middle and high-income residents and the other for middle and low-income residents. These suburbs are as follows:

5-3-3-1 Al-Sulimanya

This suburb was planned according to the villa house form. It was one of the very first suburbs to adopt this house form in Tabuk, and in the whole of the northern region of the country in general. The area of al-Sulimanya is around 200 hectares, with an average lot size of 650 sq. m. It is located 2 km from the town centre, and was released to the public in the mid-1970s. Also, its residents are believed to be mainly of middle-income, with some high-income residents.

5-3-3-2 Al-Nahdha

The original name of this suburb was The Limited Income District 1, as it was given to and distributed among the lower-income citizens. Only recently the name has changed to al-Nahdha. It was released to the public around the early 1980s, with a total area of 300 hectares, with an average lot area of 400-420 sq.

m. The suburb is located 2 km north-west of the city centre, and is believed to consist of middle-and lower-income residents.

5-3-4 HAQIL

This town was selected due to its small size (15,000-20,000 inhabitants), as well as the familiarity of the researcher with this city's urban development. Haqil today consists of two parts, old and new Haqil. The villa was introduced into two areas of the town in the early 1980s. The first was in a small neighbourhood on the fringe of the old part of Haqil (consisting of 50-70 houses only), and the second was in the new part of Haqil.

5-3-4-1 Al-Dhaharah

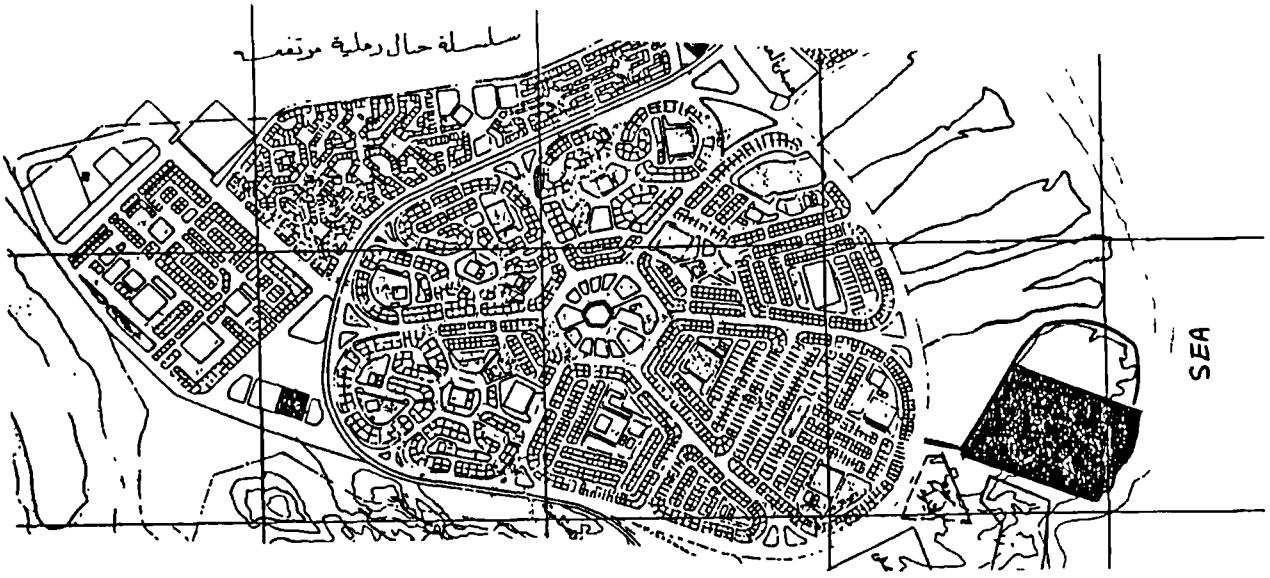

Figure 5-4: A plan of al-Dhaharah suburb, Haqil.

Al-Dhaharah, or new Haqil as it is sometimes called, was the only suburb suitable for research in this town. It is located on a high cliff overlooking the old part of the town, 1 km to the south of the town centre. The total area of the suburb is approximately 200 hectares, with an average lot area of 400-420 sq. m, see Figure 5-4. It was released to the public in the mid 1980s. Most of its houses

today are of two storeys in height, with a large number of single storey houses. This is related to the limited financial resources of Haqil's residents, as well as the lower value of housing loans available from the Government, as residents are entitled to 200,000 SR instead of 300,000 SR for the inhabitants of large cities.

5- 4 Conducting the Survey

5- 4 -1 Field Trip

To carry out the survey questionnaire, a field trip was undertaken to Saudi Arabia in 1995. The trip started in February and ended in late June 1995, according to the following plan:

From 10-2 to 12-3-95:
Preparation and surveying the chosen areas for carrying out the interview questionnaire in Riyadh, Tabuk and Haqil cities.

From 13-3 to 15-6-95:
Carrying out the interview questionnaire in the chosen areas of the three cities according to the plan and preparations made in the first stage.

From 17-6 to 28-6-95:
Revising the answered questionnaires, coding and decoding, programming and loading the questionnaire data into the computer.

The preparations in the first stage also included the making of the three models of house forms that were used in the questionnaire interviews, as well as the overlooking demonstration method. The Arabic version of the questionnaire, which was translated before leaving for the field survey, has been revised several times according to remarks by friends and colleagues, as well as the researcher's

own opinions. The pilot questionnaire was carried out in Tabuk city, and was revised according to the results of the analysis of this pilot questionnaire (a full description of this analysis is included in the following section). The final version of the questionnaire was copied (240 copies) and prepared for starting the survey.

5- 4 -2 Sample Selection

According to the available resources (financial and time), and the anticipated time needed for each questionnaire (50-70 minutes each), it was calculated that it was possible to conduct 200 to 230 questionnaire interviews in the given time for the field trip. Therefore, and after consultation with field survey specialists in the Development Planning Unit, it was decided that a minimum of 30 questionnaire interviews were needed for each selected suburb.

The best method of selecting a representative sample is by using random selection. Hence, a plan for each selected suburb was provided, and all the lots in this plan were numbered. Also, to cover for the 'no response' cases, 60 lots number were selected randomly. This was to cover for the number of lots that were found to be vacant or giving no reply or refusing to answer.

5- 4 -3 Administration of the Questionnaire

As a conservative society, a very careful and precisely planned methodology has to be designed for administering the questionnaire interviews. The general idea was to deliver the questionnaire by knocking at the main door of the selected houses. In order to gain the trust and the co-operation of the respondent several methods were used for this purpose.

First an official letter from the Dean of the College of Architecture and Planning , King Saud University, was obtained to introduce the researcher and states his survey and research aims. Secondly, a car from K. S. University was

provided, with the University tag and name clearly printed on both its front doors, as a method of identifying the researcher. Thirdly, the distribution of the questionnaire had to be conducted at a suitable time for the respondents, which was chosen to be between 4:30 and 9:30 PM on week-days excluding Fridays (as Friday is considered a day of rest, when people usually go out and picnic or visit friends and relatives).

The precise procedure followed in distributing this questionnaire was as follows:

1 - At the stated appropriate time of the day, the researcher would stop the car in front of the selected house for the questionnaire interview, making the car door with the University tag easily visible to the respondents when opening his door.

2 - A knock at the door would follow, and when answered the researcher would ask to speak to the head of the household, and introduce himself briefly if needed.

3 - When the head of the household or someone on his behalf arrived, the researcher would very briefly introduce himself and explain what he was doing, and present the official letter from the dean to the respondent to read.

4 - In most cases, the respondent would invite the researcher to enter the house.

5 - After entering the house and sitting down in the sitting room, a brief greeting would be made, followed by more information about the survey and the research.

6 - The questionnaire interview would then take place, interrupted always by tea and coffee being offered to the researcher as a normal custom in the Saudi Arabian house, and even in many cases an invitation for dinner, which was refused politely.

7 - After finishing the interview, the researcher spoke with the respondents for a few minutes on general topics, before asking the respondent's permission to leave and thanking him for his time and co-operation.

5- 4 - 4 Pilot Questionnaire

In order to try the questionnaire interview and modify any unclear points there might be before conducting it, a pilot questionnaire was carried out. The pilot consists of three questionnaire interviews, which were conducted in Stage One of the field trip. The interviewees' houses were randomly picked from al-Sulimanya and al-Nahdha in Tabuk. The approach procedure followed the steps discussed earlier in this section.

In all three cases the researcher found positive answers and was welcomed inside the house, offered coffee and tea during the interview, and had a short conversation before starting, and after finishing the questionnaire, and no refusal was received when conducting these three questionnaire interviews. The outcome of the analysis of these three questionnaires and the notes and remarks made during the interviews, were as follows:

1- The average time needed for the whole interview is 40-50 minutes, instead of the longer time of 50-70 minutes that was previously anticipated.

2- The drawing of the house layout in the first part of the questionnaire was very useful to get an idea of the house and its surroundings and orientation at the beginning of the interview, which made things easier and clearer during the interview; also, it substituted one of the three drawings that was supposed to be at the end of the questionnaire.

3- Some questions were rephrased to seem clearer and to maximise the understanding of the question point, such as questions 2 and 3 in section Three.

4- The sub-questions in questions 2 and 3 in the Fourth section (concerning the degree of overlooking violation according to the place and activity during overlooking) were shortened, in order to make them more interesting for the interviewees.

5- Regarding question 2 in section Five (concerning the models of houses that were shown to the interviewees to see which one they would prefer to build their future house according to), a third model was added to the original two models. The original two models were the villa form and the attached courtyard house form. The third one was a courtyard house with setbacks from all sides, or simply a courtyard villa. This third form was added because one respondent of the pilot questionnaire suggested this model. Therefore, it was decided that it would be a sensible idea to include the model in this question, as it would be interesting to know the response of the residents to this form of house.

6- The question of household income was very embarrassing to the residents, and the researcher found himself in an uncomfortable situation, fearing to lose the resident's confidence and interest in the interview and the questionnaire. In one of these three cases, the respondent was uncomfortable and showed stress and tension in his voice when he was asked what his family's annual income was. Therefore, it was decided to cancel this question and use an alternative method to classify the resident's income group.

Fortunately, the researcher had discussed this situation with a staff member of the DPU specialising in survey methods, before leaving for the field trip. This method consists of five parts; the number and type of cars owned by the residents, the approximate area and price of the house and the lot, the frequency and duration of foreign travel undertaken by residents, the number of servants and drivers working for the residents, and finally the researcher's own observations. All these five parts were used together on a weighing scale to find out and classify

the respondents according to their likely income level. This method enabled the analysis of the questionnaire to form a reasonable picture of the family income, and place the family in the appropriate income group.

The questionnaire was therefore modified according to these six points, reprinted, copied and then prepared for conducting, see Appendices A-1 for the Arabic version and A-2 for the English version of the questionnaire.

5- 5 Questionnaire Collecting and Analyses

5-5-1 Response Rate

The response rate for the questionnaires varied from one suburb to another for several reasons. First, as there was no way of knowing if the selected lot had been built upon or not before going there, the high proportion of vacant land played a major role in the low response rate in the suburbs of al-Shifa and al-Rayan (Riyadh), al-Nahdha (Tabuk), and al-Dhaharah (Haqil), as many of the lots in those suburbs were undeveloped or vacant. Secondly, the respondents of al-Erija showed the highest percentage of refusal for the questionnaire interview, while there were no cases of refusal in al-Shifa, al-Sulimanya and al-Dhaharah. Table 5-1 illustrates the specific response rates for each suburb.

It appeared that the refusal rate increased according to the size of urban centre, as is shown by the difference between Riyadh, Tabuk and Haqil. However, there is no clear relation between the income of respondents and the rate of refusal. This is clear when looking at the refusal rates in both al-Erija and al-Shifa which are similar in terms of residents' income, but were quite different in terms of the refusal rate. Therefore, no clear reason was found that could explain this difference in refusal rates - in any events it is not sensible to make judgements according to the given number of refusal cases, as the sample was

small and the difference between the numbers of refusals was around 1-3 cases only.

Table 5-1: Response rates for all suburbs

Response	Suburbs							
	King Fahad	Rayan	Shifa	Erija	Sulim-anya	Nahdha	Dhaharah	Total
Vacant lot	3 8%	12 24%	38 52%	7 16%	4 11%	21 38%	17 32%	102 29%
No answer	2 5%	4 8%	4 6%	1 2%	1 3%	3 5%	6 11%	21 6%
Refusal	1 3%	3 6%	0 0%	5 12%	0 0%	2 3%	0 0%	11 3%
Total collected	32 84%	31 62%	30 42%	29 70%	31 86%	30 54%	30 57%	213 62%
Grand Total	38 100%	50 100%	72 100	41 100	36 100%	56 100%	53 100%	346 100%

5-5-2 SPSS Statistical Software Package

The computer programme chosen for entering and analysing the questionnaire was SPSS for Windows, which is regarded as one of the most advanced statistical packages on the market. Also, the package was easy to understand and use, with a very helpful and powerful tutorial help, particularly version 6.1. Although other statistical packages were reviewed, such as SAS and STAT Plus, SPSS for Windows was chosen for its advanced capabilities and ease of use. For example SAS was very hard to understand and master when compared to the other two packages, while STAT Plus was much less advanced than the other two, particularly in terms of the presentation and labelling quality. Lastly, an important advantage of SPSS for Windows was that its labelling system for

data entry and definition was very easy to understand and define, which saved a lot of time on data entry.

5-5-3 Questionnaire Coding and Data Entry

A separate sheet of each page of the questionnaire was used for coding each question or choice in the questionnaire. The answers to the open-ended questions were grouped into several broader answers, in order to reduce the number of choices and allow easier and clearer analysis. The coding sheets were essential when beginning the entry of data; however, with time and practice the sheets were used much less, which saved more time and increased the data entry. Also, the method and the window of the data in SPSS for Windows was a significant factor in making data entry less difficult or time-consuming.

5-5-4 Data Analysis

The same package (SPSS for Windows) was also used for data analysis. Two types of data output tables were mainly used for the analysis. These were the frequency and the crosstabulation procedure. The frequency involves the production of one variable or question at a time, while the crosstabulation procedure involves producing a table or relation between two variables at the same time. As far as the graphics are concerned, Harvard Graphics version 2.0 was used to produce all the charts in this research.

Sometimes others methods were also used when a specific correlation between variables needed investigation. For example, sometimes three or four variables needed to be investigated at the same time. In this case, two methods were used, by using 'select cases' or 'group statistics'. While the latter is much simpler and easier to use for only three variables (and one of them has to be not more than 2-3 choices), the former method was used for more complicated analysis that could involve 3-4 variables at the same time.

5-6 Conclusion

The hypothesis was translated from theoretical form into several empirical points, which were turned into research questions that formed the basis of the questionnaire structure. The questionnaire interview, as the most suitable surveying method for this research, was tested and modified according to the pilot study that was made.

The cities and suburbs were selected to be as representative of Saudi Arabian cities and villa residents as possible, bearing in mind the time and financial resources available for the field study. The average response rate for the whole sample was 62%, which is regarded as a reasonably good response rate by the standards of survey researches. The demonstration methods used in the questionnaire (the overlooking demonstration board and the three models of house form) turned out to be very helpful in explaining points to the respondents in a precise and easily understood way. The software package that was used (SPSS for Windows) was very helpful in producing the needed correlation between variables in an easily read manner.

Conducting the survey was in no way an easy task. It required a lot of patience and hard work, as well as careful and precise planning and implementation. The worst part of the survey was when the interviewer was faced with a strong and impolite refusal from a respondent. At that critical moment the patience and strength of the will are needed and tested most. Knocking at the homes of people whom you do not know and introducing yourself and explaining patiently what you are doing, sometimes three times on each occasion a new person comes into the conversation, and explaining how the person in front of you can benefit from this research was far from enjoyable, and full of embarrassing and uncomfortable situations. The worst situation was when the respondents, after

all the effort of explanation and persuasion, through talking and showing them the official letter and car, refused to allow the questionnaire interview in an ignorant way, intending perhaps to put one off or ridicule what one was doing.

However what compensated for those hard, disappointing and depressing moments was when the interviewer was received with a smiling face and helpful attitude by many respondents. Almost all presented Arabic coffee and tea to the interviewer, and some offered fruit or told jokes. Some even offered to help in filling another questionnaire or calling their neighbour in order to arrange an interview with him, which was refused politely after explaining the random procedure followed in the survey. Others even insisted on the interviewer staying for dinner, or inviting him for lunch on the following day.

One particular respondent in King Fahad suburb, a healthy-looking elderly man, strongly insisted on the interviewer accepting his invitation for dinner with his male family members. For this respondent, and many others, the success of this survey is dedicated. Their attitudes, words and smiles were the source and motivation that gave the researcher the strength and will to carry on the survey, which without them would have been a very hard, or even impossible, task.

6-

THE SURVEYED AREAS AND POPULATION

6-1 Introduction

This chapter discusses and analyses the characteristics of the surveyed areas and their residents. The purpose of this chapter is to give an introduction to the characteristics of these areas and residents, before analysing the residents' responses. This chapter should form a reference point for the comparison of the surveyed areas and cities.

The discussion includes an investigation of the house's physical characteristics, such as height, size, fence height, age. Also, the characteristics of the respondents are included in this investigation, such as the respondents' age, educational background, length of residence, income group.

6-2 Respondents and Population Characteristics

6-2-1 House Age and Ownership

Almost one-third of the surveyed houses are more than 9 years old. Approximately half the houses were found to be less than 7 years old, a third of which were houses of 1-3 years old, see Appendix-Tables 6-1 and 6-2. This is due to the fact that most of the suburbs that were selected are relatively new, especially in the case of al-Shifa, al-Nahdha and al-Dhaharah, where almost half of the houses in the first two suburbs were built within the last 6 years, and over two-thirds of the houses in al-Dhaharah were built within the last six years. The older houses were found in al-Erija and King Fahad suburbs, where approximately half of them were 10 years old and over.

In terms of cities, Riyadh is in the lead with more than half of the surveyed houses being 7 years old and over. In Haqil, two-thirds of the houses were less than 7 years old, and in Tabuk the age of the houses was found to be in between Riyadh and Haqil, see Appendix-Table 6-3.

When comparing house age with the length of residence, it was found that half of the surveyed houses (112 houses) were 7 years old and over, but only 71 residents moved into their houses directly after they were built, and the remaining 41 residents moved in at some stage afterwards, as can be seen in Appendix-Table 6-4. Moreover, of the 52 respondents owning their residence that were more than 9 years old, only 34 of them moved into their houses directly after they were built, and the remaining third moved in later on. This difference between period of residence and house age indicates that when the house was unoccupied, the resident had leased it to someone before he moved in, or the house was built and inhabited by someone else, after which the respondent bought and occupied it, see Appendix-Table 6-5.

In general, about one out of every five houses that were surveyed was rented, and the rest were owned by their residents, see Appendix-Table 6-6. When comparing the cities in this survey, the situation differs a lot. In Riyadh, 25% of the surveyed houses were not owned by their residents, while in Tabuk and Haqil the percentage was much lower, about 5% and 10% respectively, see Appendix-Table 6-7. Regarding the suburbs' aspect, the picture differs more markedly. In al-Sulimanya, only 1 out of the 31 houses surveyed was found to be rented, while in al-Shifa and al-Rayan it was three out of every fifteen houses, and in al- Erija and King Fahad 5 out of every 15 houses, see Figure 6-1 and Appendix-Table 6-8.

These differences appear to indicate that the rate of house ownership in large urban centres is less than in smaller centres. Also, the rate of house ownership decreases as the age of the building increases. In other words, the older

the suburb or the larger the urban centre is, the higher the proportion of houses not owned by their residents.

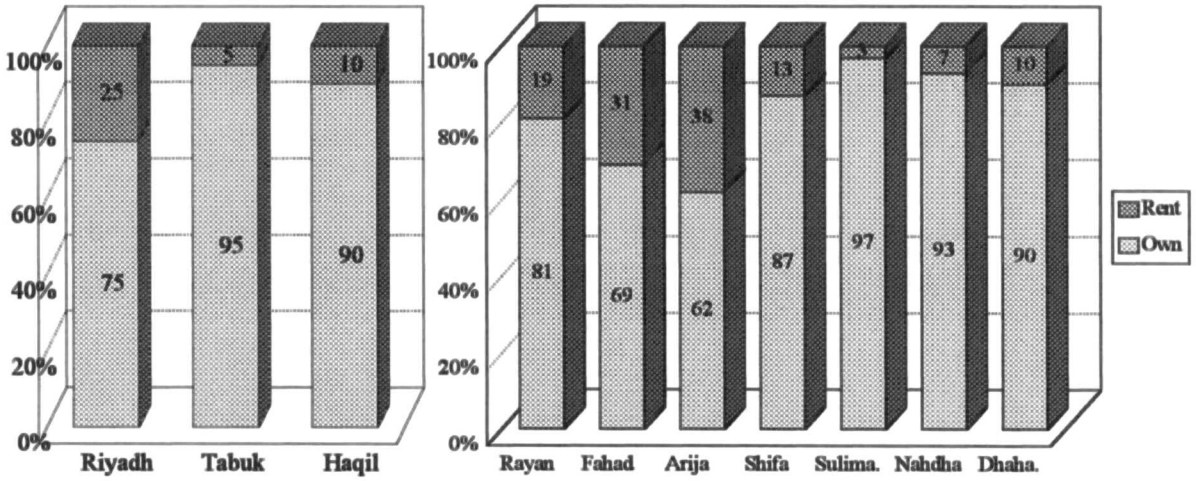

Figure 6-1: Percentage of house ownership, according to city and suburb.
(The first four suburbs from the left are in Riyadh, while Sulimanya and Nahdha are in Tabuk and Dhaharah is in Haqil).

6-2-2 Household Size

As illustrated in Figure 6-2 Tabuk and Haqil showed larger households than Riyadh, while al-Rayan and al-Sulimanya showed the largest households for large urban centres. Also, households show a tendency to be smaller in new suburbs than in older ones, see Appendix-Table 6-9 to 6-11.

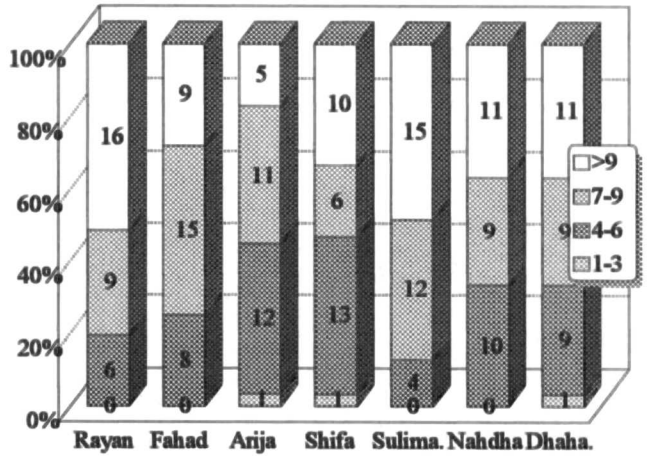

Figure 6-2: Household group size, according to suburb.

As additional, the vast majority of the surveyed houses were found to consist of single families, especially in the older suburbs of al-Erija (72%) and King Fahad (65%), and in the larger settlement of Riyadh (64%) when compared to Tabuk (41%) and Haqil (63%), also see Appendix-Table 6-12 to 6-14. Usually, large urban centres have a smaller proportion of extended families than small

centres, as was the case between Riyadh and Tabuk. However, it was found that Haqil had a high proportion of single families.

The reason behind the high percentage of single families present in Haqil, is due to the fact that most of the residents of the chosen suburb (al-Dhaharah) were young families from Haqil as well as from other regions in Saudi Arabia, who came to settle there in response to the demand for high-skilled government employees in Haqil. While there was still a large percentage of extended families in the older parts of Haqil, only a few of these have moved to the new suburb al-Dhaharah.

The average number of children per household is almost equally distributed between 1-3 and 4-6 for all the surveyed houses, 42% and 50% respectively. Also, the same proportion is relatively constant in all suburbs and cities, except for al-Sulimanya, where the number of children per household is larger than the average, see Appendix-Table 6-15 and 6-16.

None of the houses with families consisting of more than nine people are rented by their residents. Less than one house in ten that is occupied by families of seven or more is rented by its residents. When looking at smaller families, of less than seven people, this figures increases substantially, where 4 families out of 10 rent their houses, see Figure 6-3 and Appendix-Table 6-17 and 6-18).

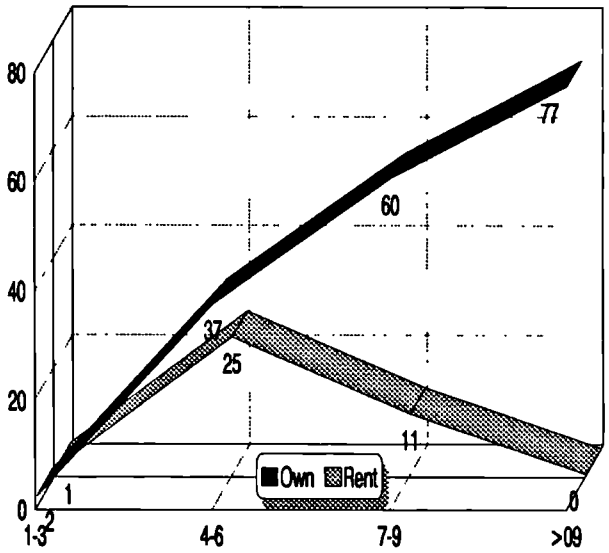

Figure 6-3: Number of residents owning and renting their houses according to their household group size

These proportions indicate that renting houses is more common amongst families of small households than amongst larger families. Furthermore, house renting is more common in large urban settlements than in smaller centres. Whereas half of Riyadh houses with less than 6 persons per household are rented, the proportion decreased significantly in Tabuk to less than 15% and only 30% in Haqil, see Appendix-Tables 6-19 to 6-21.

6-2-3 Income

Households in the middle income group formed the majority of the surveyed houses. They formed 76% of the surveyed population, whilst the low and high-income groups formed 14% and 10% respectively. Interesting findings arise when comparing the different cities and suburbs. For example, Figure 6-4 points out that there were no high-income households found in Haqil. Moreover, Haqil also showed the highest figures of low-income households. On the other hand, Riyadh exhibited the highest presence of high-income households, and the lowest proportion of low-income households, see Appendix-Tables 6-22 to 6-24.

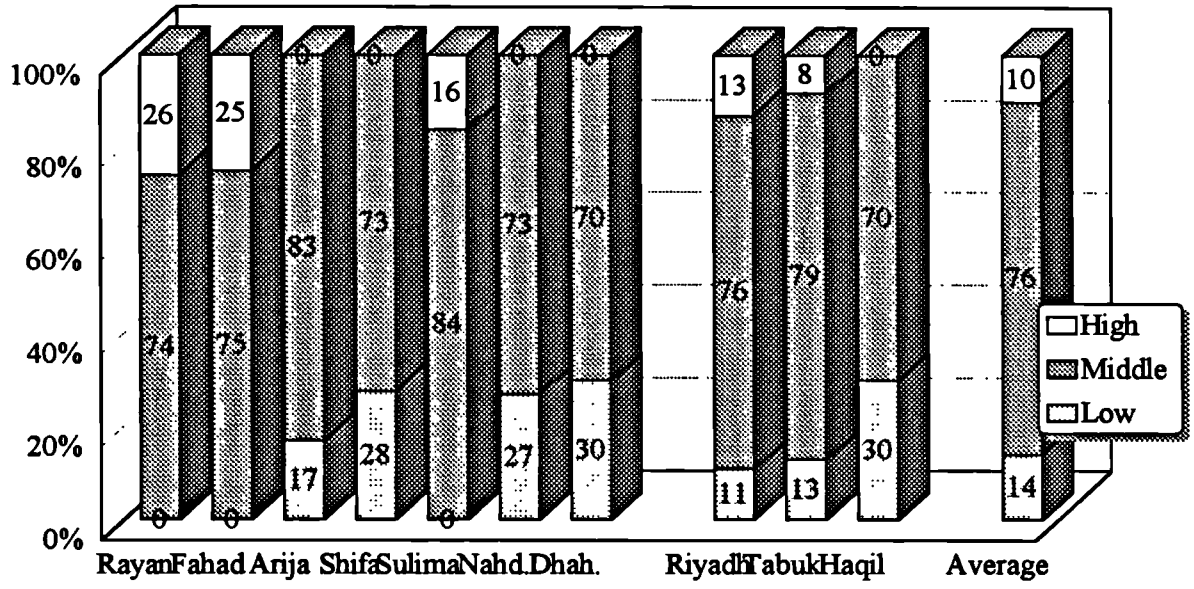

Figure 6-4: Distribution of income groups per household according to city and suburbs.

The high proportion of wealthy households in Riyadh indicates that high-income families tend to be found in large urban centres more often than in smaller centres. Also, the statistics for Haqil appear to indicate that the proportion of low-income families is higher in small urban centres than in larger centres.

Looking at suburbs, the survey analysis for household incomes, prove that the assumptions made in the previous chapter regarding the income classification of the chosen suburbs, were mostly right. All seven suburbs showed the assumed income figures when compared to the average or cities' figures. One exception was that King Fahad suburb, which was an assumed to be a middle-income suburb, that showed income figures very close to the assumed high-income suburb of al-Rayan. Nonetheless al-Rayan still shows a slightly higher proportion of high-income households than King Fahad suburb.

The most interesting finding of this comparison is that none of the suburbs showed the presence of all three income groups together in the same place. All the seven suburbs showed the existence of a middle-income group accompanied by either a low or a high-income group. No low-income households were found in suburbs containing high-income homes, and vice versa. This leads to the conclusion that high-income families tend not to live in suburbs occupied largely, or even partly, by groups of low-income families.

The price of land appeared to be a very important factor in excluding low-income households from suburbs occupied by high-income ones. The price of land in King Fahad and al-Rayan suburbs, where high-income groups live, was at least four times higher than the price of land in al-Shifa and al-Erija, where low-income groups reside. Also, the high-income residents usually tend to prefer to live on large lots, as they can afford the purchasing and maintenance costs, compared to low-income residents who would probably prefer to live on large lots

but cannot do so because of cost and, therefore, choose to live on middle or small sized lots.

The observations concerning Riyadh also apply to the two surveyed suburbs of Tabuk, in terms of the absence of high and low-income groups living together in the same suburb, as well as the observations concerning land price. In Haqil, the situation was not clear due to the absence of any high-income households among the surveyed houses, and to the fact that only one suburb was surveyed.

The effect becomes clearer when linking lot area to household income. None of the high-income households have a lot area of less than 601m2. By contrast, the vast majority (three-quarters) of low-income group houses are in this range, see Appendix-Table 6-25. The large land area required by high-income groups, limits the chances of finding large plots of land in suburbs that have only been planned for small lots. On the other hand, low-income groups have decided to live in suburbs to containing small lots at an affordable price.

Furthermore, when examining the house ownership aspect, it is clear that the proportion of homeowners rises with increase in income, as shown in Figure 6-5. The increase of financial capability of a household, certainly increases the family's ability to own its residence, instead of spending a large proportion of income on rent, see Appendix-Table 6-26.

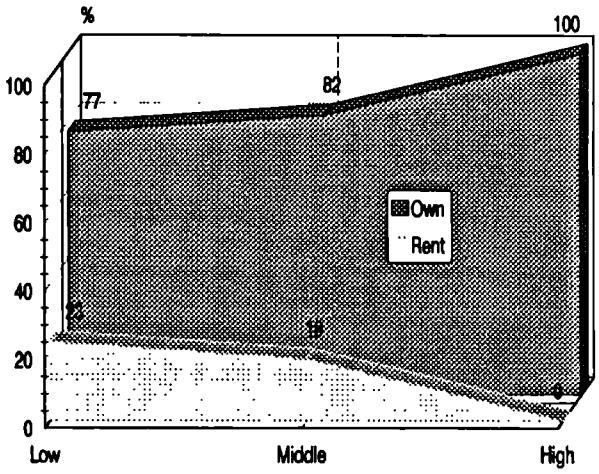

Figure 6-5: House ownership and renting according to level of income.

Looking at these proportions from the perspective of a household's size, another interesting picture appears. Over half of the low-income group are of small family size, while this size forms only a small fraction of the middle and high-income groups (about 25% and 14%). Thus, it appears that most of the low-income group are young families, especially when observing that more than half of them are between the ages of 20 and 30, and that over 70% of them consist of 1-3 adults only, with a small number of children, between 1 and 3, see Appendix-Tables 6-27 to 6-30.

6-2-4 Education

The overall proportion of illiterate people (who does not know how to read and write) in the survey is low, when compared to the estimated figure for the whole country (only 3% for the survey, between 25% and 35% for the country), see Figure 6-6. There are several reasons behind this significant difference. One of the main reasons is that the survey was carried out in urban areas (which account for more than 75% of the total population, and have the highest literacy rates) whilst the country's average figures include both urban and rural areas.

In addition, large urban centres, such as Riyadh, and to a lesser degree Tabuk, have a very high rate of literate people, when compared to small urban centres or rural areas. Looking at the educational background of the respondents from the three cities shown in Figure 6-6, this point is clarified. Whereas Riyadh had no illiterate respondents among the surveyed houses, Tabuk had only 2%, while in Haqil the figure jumps to 17%.

Another point, but less important, is that the respondent might feel shy or ashamed to say he is illiterate, and instead would prefer to say that he has a primary or other level education, in order to avoid embarrassment in front of the

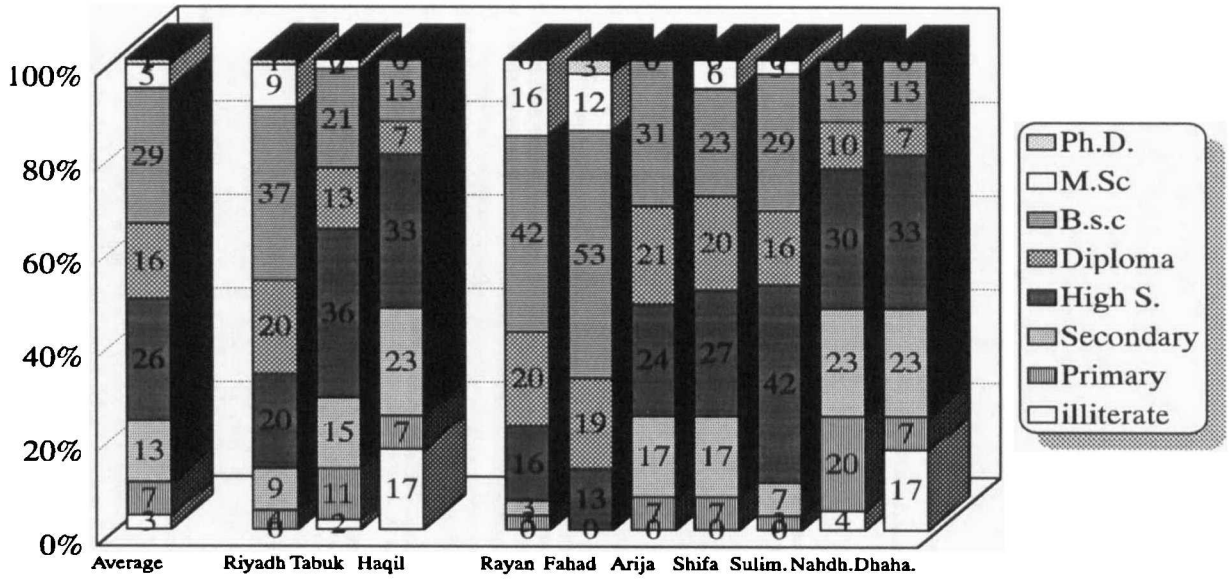

Figure 6-6: Percentage of respondents' educational background according to cities and suburbs.

interviewer and any other person present during the interview. These two points may explain further the main reasons behind the low rate of illiterate respondents in the surveyed area.

It was found that there was a strong correlation between the respondents' education and their level of income, age, household size, house ownership and size of urban settlement. Increase in the level of the respondents' educational background is mostly accompanied by increase in the size of urban centre and income level. In contrast, increase in education is mostly accompanied by a decrease in household size, age group and, surprisingly, the degree of house ownership. Three-quarters of the respondents renting their homes were college and university degree holders.

This correlation between level of education, income and house ownership, seems contradictory at first examination, because an increase in income usually leads to an increase in home ownership. When, examining more closely the other factors, such as age, respondent's family position and household size, a better

explanation appears. There was a total of 37 respondents renting their homes in the surveyed areas. Almost all of them had a high educational background, and were in a young age group and had a smaller family size, as can be seen from Table 6-1.

Table 6-1: Number of residents renting their residence according to their family size, age group and family position.

Education	Family Size				Respondent's Age					Respondent's Family Position		
	1-3	4-6	7-9	>9	<20	20-30	31-40	41-50	>50	ath-er	Eldest Son	Son
Secondary S.	0	4	0	0	0	4	0	0	0	4	0	0
High S.	0	3	2	0	1	3	1	0	0	4	1	0
Diploma	0	4	2	0	0	4	2	0	0	6	0	0
University	1	12	5	0	0	7	11	0	0	18	0	0
M.Sc.	0	2	2	0	0	1	2	1	0	4	0	0

Being mostly in the middle-income group (30 out of the 37), most of the renting respondents should have a reasonably good level of income, which should allow them to own their residence without much difficulty. However, they are mainly young couples, who have just started their family and working life. Most of them (28 out of the 37 respondents) have spent a number of years studying for a university or college degree, although they have not had enough time to save or to arrange for the costs involved in buying a house, see Appendix-Tables 6-31 and 6-32.

Most of the residents who are renting, have already applied to the government to be granted a free lot of land, which, as explained in earlier chapters, applies to most Saudi citizens who do not own any land. So, they might be waiting for it or they might have already received it. Alternatively, if they have

not received or applied for land, but at the same time do not want to wait until it has been granted, they are at the stage of looking for land to buy. In both cases, these residents, having planned and resolved the problem of owning land, are generally preparing themselves to build their house on that land, either granted to them or bought.

Most Saudi citizens that own land are eligible to apply for interest free housing loans from the government. Therefore, it is usual practice as soon as residents own land to apply immediately for a government housing loan. In some cases, where respondents are financially capable, either through family help or others, they start building their house earlier, rather than wait for the government loan, which might take some time to arrive.

6-2-5 House's Physical Characteristics

Although half of the surveyed houses are of an area between 600 and 900 square metres, this proportion differs dramatically between the seven surveyed suburbs. As explained in the earlier part of this chapter, each suburb was planned according to sets of lot sizes. Therefore, as can be seen from Figure 6-7, all suburbs were planned to contain mainly one of two types of lot size. The first type is found in King Fahad, al-Rayan, al-Sulimanya and al-Shifa suburbs, which are predominantly made up of 600-900 square metre lots. Al-Erija, al-Nahdha and al-Dhaharah consist of the second type, which are mainly made up of 400 square metre lots, see Appendix-Tables 6-33 to 6-35.

The majority of lots fall in the above two sizes, yet, as Figure 6-7 shows, there are some exceptions. In some cases, there are lots of a much larger size than those originally planned for that suburb, such as the case in al-Dhaharah and al-Nahdha, where there are lots exceeding 450 square metres, and also in the case of al-Rayan, or King Fahad, where there are lots exceeding 900 square metres. The reason, in the first case, is that some residents require a larger house,

consequently they need a larger lot, and this forces them to buy 2 lots and join them together. These residents must be financially able to purchase two lots, and also be patient and fortunate enough to find two adjacent lots for sale at the same time.

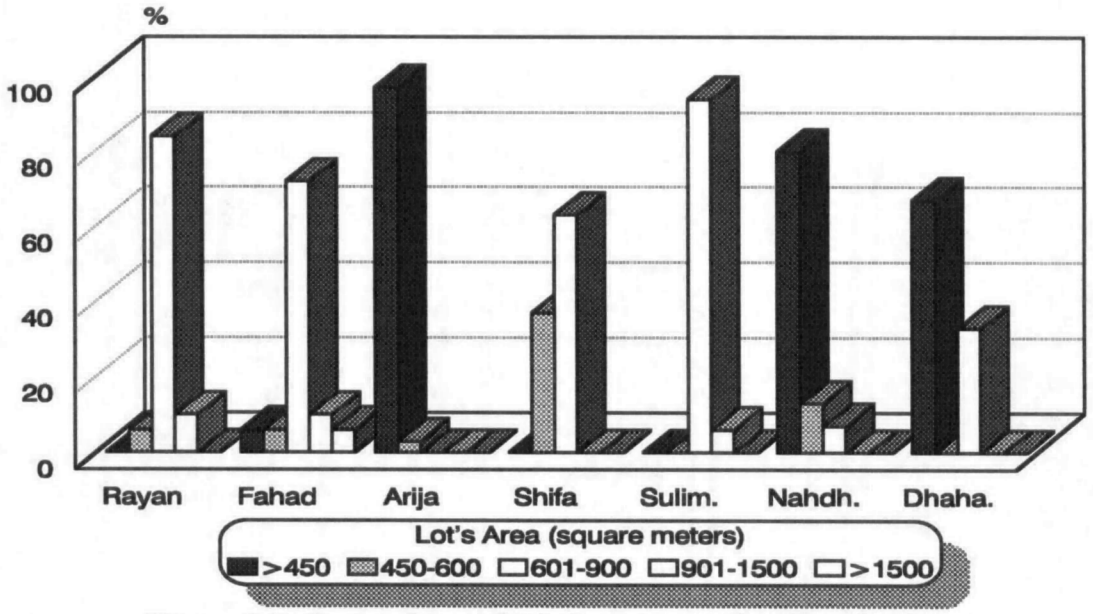

Figure 6-7: Percentage of lot sizes according to suburbs.

In the case of al-Rayan, King Fahad and al-Sulimanya, it is usually one of the following two cases. First, if the suburb was planned and sold by the private sector, such as al-Rayan, the developer usually tends to provide different lot sizes, in order to suit residents looking for larger lots of land. Secondly, if the suburb was planned and distributed by the government, as is the case in al-Sulimanya and King Fahad, then the residents will look for two adjacent lots for sale, in order to join them together as one lot and build one house on them.

Nevertheless, it has been found that the houses of high-income residents, and to a lesser degree the university and college graduate residents, are of large lot size, while low-income and less educated residents have smaller ones, especially when excluding renting respondents who usually rent houses on smaller lots. For example, an examination of Figure 6-8 shows that about two-thirds of the low-income residents' houses are built on lots with an area of less

than 450 square metres (m2). By contrast, no residents in the higher income group have houses built on a lot of the above size; all of their lots measure more than 600m2, see Appendix-Tables 6-36 and 6-37.

The rate of increase in lot size accompanied with an increase in residents' educational background is less than the rate of increase with income level. Nevertheless, both rates show that as long as the higher educated and higher-income residents have sufficient financial capabilities, whether through having enough savings or other sources, they prefer to live in large lot houses with large yards, and pay for the extra costs of land area, especially when taking into consideration that the vast majority of lots exceeding 600m2 in area, have at least one or two yards of 5 metres or more in width, as shown in Table 6-2. With the same planning regulations applying to all lot sizes (except in the case of al-Erija), residents tend to prefer to use the majority of the extra land for their yards rather than their houses.

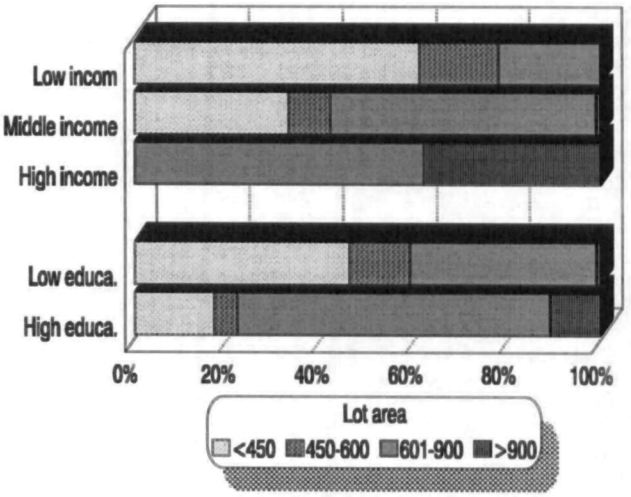

Figure 6-8: Percentage of lot sizes of residents owning their houses according to their income and educational background.

Table 6-2: Number and percentage of lots with and without any yard of 5 metres or more in width (all lots included).

Lot size	Lots with any 5m yard or more		Lots without any 5m yard or more	
	No.	%	No.	%
Less than 450m2	30	40	44	60
450-600m2	16	80	4	20
601-900m2	104	95	5	5
901-1500m2	8	100	0	0
More than 1500m2	2	100	0	0

This becomes clearer when looking at lots of less than 450m2, excluding al-Erija and all rented houses from the analysis. The reason for excluding al-Erija houses is because there is a special planning regulation policy applied there, enforcing only the attached house form with a minimum setback of 6m for the back yard, although this policy has changed lately. This leaves only one house in ten with any yard of 5m or more in width in that lot size. When looking at larger lot sizes, almost all houses have one or more yards of 5 metres or more in width.

The result of this analysis leads to the conclusion that residents of the surveyed areas usually give priority to indoor spaces rather than outdoor ones, especially in the case of small lot sizes. In other words, when a resident designs or builds his house, he gives priority to the roofed spaces he needs. If any space is left, after fulfilling the requirements of planning regulations, he allocates it to one or two yards for the house. However, these planning regulations are mostly fixed - no matter how large the lot size is - but the indoor space requirements generally increase with the increase in household size and income level of residents.

It appears that the most common fence height in the surveyed houses is between two and three metres (56%), which is sufficient for providing the house with privacy from passers-by, but is not enough to block the view from neighbours. However, most of the remaining houses had fences of 3m and higher (41%), which is still not sufficient to block the neighbour's views, if he or she was looking from the first floor windows. Therefore, most residents who want privacy, tend to build an extra fence on top of the main one on certain carefully selected sides of the house. This point is going to be investigated intensively in later chapters.

Nevertheless, it is worth mentioning here that there is a strong correlation between the size of lot and the width of yard on one hand, and the height of the

main fence on the other. While most of the smaller size lots and narrow yards have a fence height of between two and three metres, the vast majority of larger lots and ones with wide yards have higher fences. The reason is related to more than one factor. The increase in income, for example, enables the resident to pay for the extra height. Also, wider yards usually require higher fences to maintain their privacy, and the type and height of buildings surrounding the house and the personal requirements of the residents have a lot to do with the height of the dwelling fence, see Appendix-Tables 6-38 and 6-39.

6-3 Respondents' background

Due to the method chosen for conducting the survey, the age of the respondents does not represent the age of the head of the household, because approximately three in ten respondents were the sons of the head of the household. However, when looking at the head of the household only, it is found that the majority of them fall into the age group of 31 to 40 years old. Comparing the 3 cities, a fairly similar picture appears for each of them, but with a higher proportion of younger respondents in large cities and a greater number of older respondents in the smaller cities, see Figure 6-9. However, different proportions are found in the suburbs, which are related heavily to the age of the suburb itself. As discussed earlier in this chapter, older suburbs tend to have an older population and vice versa, see Appendix-Tables 6-40 and 6-41.

The middle income group has the largest range of age groups for the head of households. To illustrate this, when comparing the household heads in the middle-income group to those in the high and low-income groups, there is a higher proportion of heads in the middle age group than is the case for the other income groups.

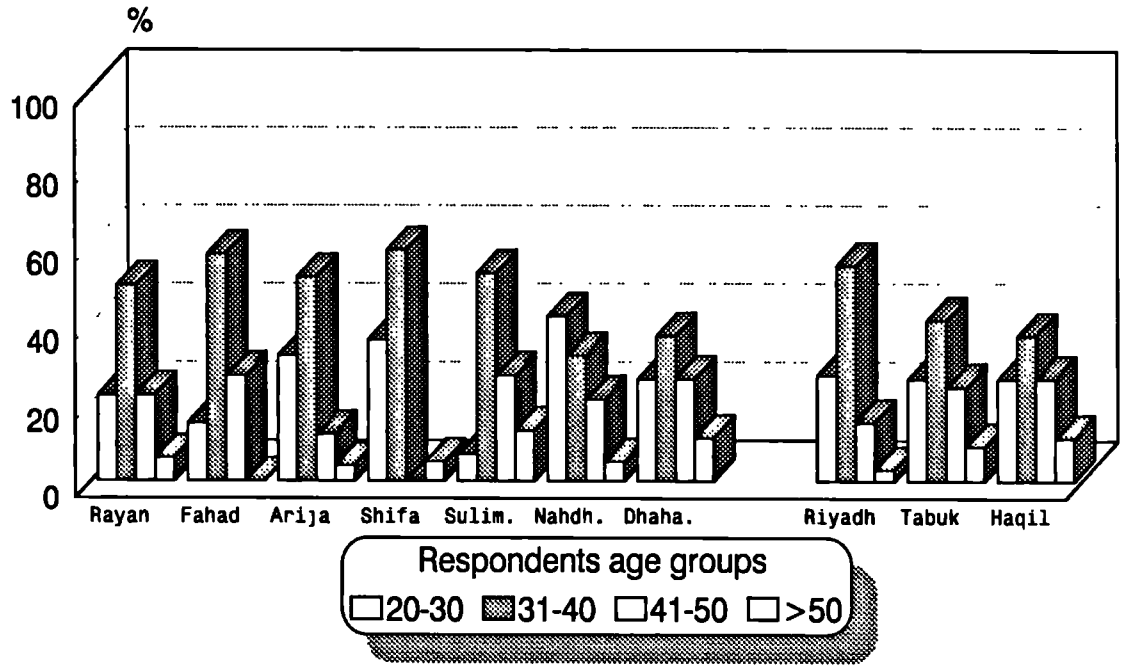

Figure 6-9: Head of households' age group according to city and suburbs (in percentage).

The low-income group has a higher percentage of heads of households in the young or older age groups. The reason behind this differentiation is due to two points. Younger household heads are more common in the low-income group because they have recently married, and have not had a long working life. As these younger heads gain more work experience, they improve their skills, their income will increase, they then move into the middle age group and become a middle-income household. Older heads of households are found more in the low-income group due to the fact that they have a lower educational background and lower level of skills; also, they mainly reside in smaller cities where job opportunities are fewer and salaries are lower.

This explanation is enhanced further when examining these proportions from city size. For example, the heads of low-income households, both young and old, are more commonly found in smaller cities as opposed to larger cities. This is strongly related to the fact that a high proportion of low-income and older people live in smaller urban centres, see Appendix-Tables 6-42 to 6-45. This is even

clearer when examining the place of birth of the respondents. Large urban centres show the lowest ratio of respondents born in that city. On the contrary, smaller centres have the highest ratio, which in turn indicates further that the majority of the large urban centre population come from other parts of the country, and move to the big cities because of job opportunities and in the hope of raising their living standards. In Riyadh only 3 in 10 respondents were born locally, while in Tabuk the ratio is twice of that in Riyadh. The ratio was expected to be higher still in Haqil, but surprisingly it was only 5 in 10.

This contradiction concerning the ratio in Haqil would disappear if these ratios included both the ratio of respondents born in the same city and in the same region, where Haqil shows a higher ratio. One reason, is that the majority of Haqil's residents are nomadic people, who used to travel between places in the Haqil region, and have only settled down in the past ten to fifteen years. Tabuk, too, has a very high proportion of residents from a nomadic background, who settled down in the city having come from different parts of the Tabuk region. In Riyadh, the situation is significantly different, as only a small proportion of its residents were born in the city or its region. This is mainly due to the fact that Riyadh is the capital of Saudi Arabia, and has attracted most of its inhabitants from other parts of the country, see Appendix-Table 6-46.

Investigating the respondents' educational background as regards their place of birth, strengthens the previous conclusion. Almost half of respondents born outside the region of their present residence were university degree holders, while this ratio declines to less than a quarter when examining the respondents born in the same city or region.

Moreover, as shown in Figure 6-10, screening these ratios according to city size, especially in Riyadh, indicates further that when students come to a large city from other regions in the country, for their university education, they

prefer to settle down in that city after their graduation rather than going back to their original town or region. Also, if a person with a low educational background, such as primary or secondary level, wants to move to another place to live, he would most certainly migrate to a larger urban centre rather than a smaller ones, which would explain why there were no respondents of this educational level residing in Haqil who originally came from a different region, and why there are only a few of them in Tabuk, see Appendix-Table 6-47.

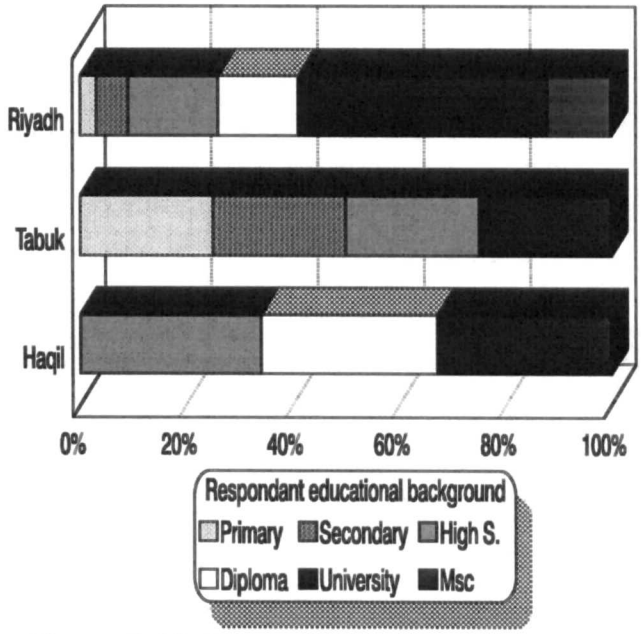

Figure 6-10: Percentage of respondents born in other regions according to their educational background and city.

6- 4 Summary of Findings

- Approximately, half the houses surveyed were found to be less than 7 years old. The "older" houses are found more in King Fahad and al-Erija suburbs, the newer ones are found in al-Shifa, al-Nahdha and al-Dhaharah.

- 1 in every 5 houses was found to be rented, while the remaining houses were owned by their residents. Also, the rate of house ownership is found to be less in large urban centres than it is in smaller ones.

- The average household in smaller urban centres is found to be higher than in larger urban centres.

- Middle-income residents formed 76% of the total surveyed houses, while the high and low-income residents formed 10% and 14% respectively. Most of the higher income residents are found in larger cities, while there were no high-income residents found among the surveyed houses in Haqil. On the other hand, the lower income residents were found more in smaller urban centres than the medium or large ones.

- The lower income group showed the highest proportion of renting residents. All the higher income were found to own their houses.

- It was found that most of the lower income residents are young families, starting to raise and build their new family life.

- Generally, the increase in educational background of residents tend to lead to an increase in income.

- Half the surveyed houses are of lots of 600-900 square metres. This proportion differs a lot according to suburbs. While King Fahad, al-Rayan, al-Sulimanya and al-Shifa are found to consist of large lots (mainly 600-900 square metres), al-Erija, al-Nahdha and al-Dhaharah consist of small lots (mainly 400-450 square metres). Although, there are some lots of more than 900 square metres, they are rare, and almost no lots are less than 390 square metres.

- There is a tendency that with increase in lot area, there is an increase in the height of the house fence and the yard size.

- The majority of household heads are between 31-40 years old, with a higher percentage of older heads in smaller urban centres, and younger ones in larger urban centres.

- The large urban centres showed the lowest ratio of residents born in that city, while smaller centres have the highest ratio. This indicates that the majority of the large urban centre residents are immigrants who settle down there whilst looking for job opportunities.

7-

USE OF SPACES IN THE HOUSE

Page

7-1 Introduction

The present chapter examines the use of villa yards and roofs by residents, as well as the degree of overlooking by neighbours on both spaces. It will examine if overlooking has any effects on the residents' use of and activities taking place in these spaces. The residents' use of and opening of windows will also be investigated, as will the effect of neighbours overlooking and climate. These effects are measured by the residents' use or lack of use of these spaces, as well as the physical character of the villa and any added structure or modification the residents have attached to their houses.

7-2 Residents' Use of House Yards

7-2-1 Effects of Overlooking and Residents' Use of Yards

Since almost all the houses in the surveyed areas are of square or rectangular lot shape, they have four yards, except in the case of al-Erija where most houses have only two yards, with only a few having three or four yards. If al-Erija is excluded, then more than nine out of every ten houses have four yards, and the remaining houses usually have only three yards. The main reason for this is that the house is subdivided and rented to two families; one living on the ground floor and the other occupying the first floor. In most cases, the family living on the ground floor of the house occupies three yards of the dwelling (the front, back and one side yard), while the family on the top floor uses only one yard, which is used as an entrance to the staircase leading to the first floor (usually it is one of the side yards).

As has been explained in the previous chapter, in the case of subdivided and rented houses, this survey has only included families living on the ground floor. This is because the upper floor has only one yard and thus would not be significantly affected by overlooking, or by the planning regulations and house form studied in this research, especially when compared to the ground floor part of the house, which has at least three yards, and would therefore be much more affected by being overlooked and by planning regulations. This in turn would lead to discouraging the family living in the upper part from using the only yard they have, since it is mostly a side yard of no more than 2-3 metres in width, and therefore could hardly be used for any family activity other than as storage space.

However, in order to determine the effect of overlooking on house yards and their use by residents, these overlooked yards will be studied from three different aspects in the following three sections; a) the degree of overlooking, b) the effect of being overlooked on the family's use of yards, c) the characteristics of the family members using these overlooked yards.

7-2-1-1 Degree of Overlooking

The questionnaire contained two types of data regarding overlooked yards. The first was obtained by asking the resident himself if he thought his yard was overlooked by neighbours and how often this violation occurred. The second was by the surveyor's observation, whereby a sketch was drawn of the house and its surroundings with notes regarding overlooked yards. These two data sources were later integrated in the data processing and analysis of this survey.

The comparison between these two data sources showed insignificant differentiation. For example, 123 residents stated that their main yard was overlooked by neighbours, while the data gathered from observation showed 116 houses with their main yard overlooked by neighbours. The reason behind this

slight difference relates strongly to the more detailed classification used in the observed data.

Four classifications or degrees of overlooking were used in the latter data source: "major overlooking" for complete overlooking of the whole yard or most of it, "medium overlooking" for overlooking that covers half the yard, "minor overlooking" for overlooking that covers a small part of the yard, and "no overlooking" for a yard that is not overlooked at all.

Therefore, a resident may consider his yard is overlooked, when the observation analysis shows it is only partly overlooked. Since the difference between the outcome of those two methods is very small, and they carry two different points of views that might enrich the analysis, this research will use both data sources or one at a time depending on which is appropriate at that part of the research.

According to the data collected from observation regarding overlooked yards, it is found that there are very few houses with no overlooked yards. Only in 19 houses out of the 213 surveyed are all of the four yards not overlooked or with only minor overlooking. On the other hand, more than 18 out of every 20 houses have one or more of their yards substantially overlooked by neighbours. About 6 out of these 18 houses have only one substantially overlooked yard, and only 1 has all of its yards overlooked, while the remaining 11 have two or three of their yards overlooked.

If all the house yards are combined together, another picture appears. The accumulated number of yards in the survey is 709 yards. Figure 7-1 shows the breakdown of this number according to yards and to the residents' opinion of how often their yard is being violated by overlooking neighbours. The "inapplicable" classification in the graph refers to houses with less than four yards.

It is clear from the graph that more than 40% of the main or the front yards of houses are overlooked frequently. Whereas the front yard is the most overlooked of all yards, the backyard appears to be the least overlooked. This is probably the case because the front yard is generally used mostly by residents and is always the largest and widest in terms of space, as will be shown and discussed in more detail in the next sections. Therefore, it is the most exposed yard for overlooking due to its large size and width, and also due to the fact that any overlooking by neighbours is going to be felt much more in this yard rather than the back or side yards which are used less frequently.

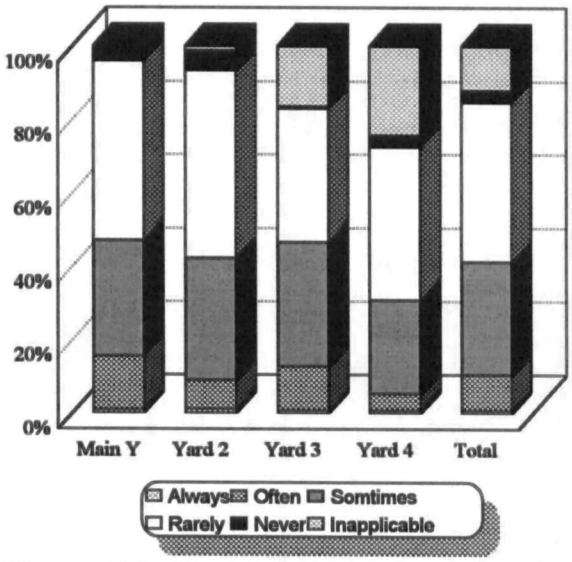

Figure 7-1: Residents' opinion of their yards violation by overlooking.

The overall outcome of this analysis is that privacy violation by neighbours is the usual case in the majority of villas in the surveyed areas. However, in order to measure this violation accurately and practically, two themes were developed for this purpose. The first, is through the behaviour of residents themselves, and their frequency of use of the overlooked yard and their activities in this yard, then comparing these yards to yards that are not overlooked. The second theme, is the analysis of any physical structure and modifications the residents have added to their yards, in order to overcome or to reduce the overlooking problem. These two themes are discussed in the following sections.

7-2-1-2 Use of Yards

The overall picture found in this survey analysis of dwelling yards is that they are generally used, but the frequency and type of this use varies considerably

according to several factors, such as the sex and age of residents involved in that activity, climate, time of day and the physical environment surrounding the yard. In terms of climate and time of day, for example, most activities were found to take place during evening hours in summertime and the morning/afternoon in wintertime, when temperatures are reasonably comfortable for residents to use the house's open spaces. These factors are therefore going to be considered during the analysis of the residents' use of yards in this section as well as in the rest of this chapter.

Table 7-1 illustrates the residents' activities in these yards as influenced by neighbours overlooking and yard conditions. Since the majority of the houses are on one street only, yards 2 and 3 in the table represent both side yards, and yard 4 represents the backyard. As regards the houses on two or three streets, which amount to one quarter of the total number of houses in the survey, the main yard is the most important and largest one in the house and is usually the one adjacent to the widest street, while yard 2 represents the other street yard, and yard 3 represents the yard adjacent to the main one and yard 4 stands for the backyard that is facing the other side of the main one, see Figure 7-2 for more details.

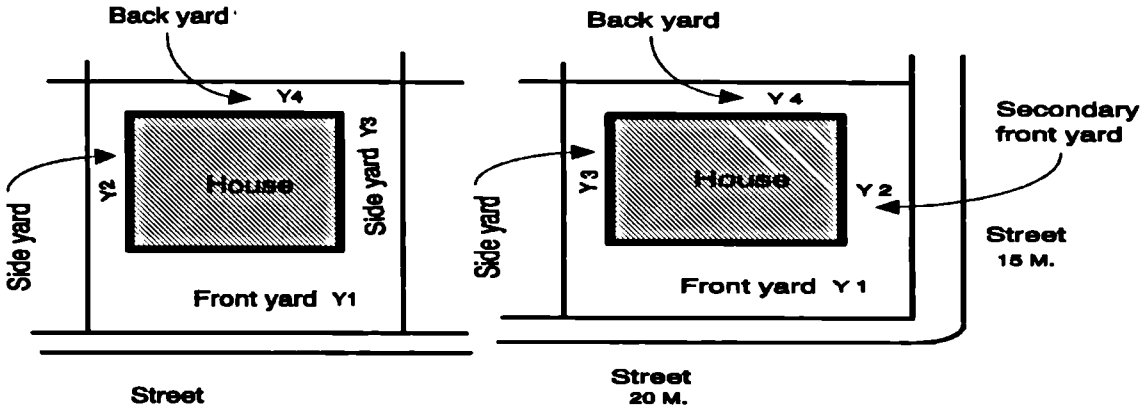

Figure 7-2: Typical villa layout with yards' names and locations for a villa located on one street (left) and on two streets (right).

Table 7-1: Residents' use of their house yards according to activities in the yard and overlooking.

Yard	Main Yard		Yard 2		Yard 3		Yard 4		Total		
	Overlooking		Overlooking		Overlooking		Overlooking		Over-looking		All
Activity	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	
Men sitting	67	51	14	5	0	1	0	0	81	57	138
Women sitting*	4	9	2	27	2	2	0	0	8	38	46
Family sitting*	21	42	14	56	4	9	2	1	42	108	150
Children playing	100	75	56	77	12	6	0	0	168	158	326
Hanging washing*	3	2	15	24	13	20	12	12	43	58	101
Storage	20	4	21	16	28	19	26	12	95	51	146
Pathway	3	5	9	4	17	20	4	3	33	32	62
Men's sports	7	1	0	1	0	0	0	0	7	2	9
Gardening	36	24	8	3	6	4	0	3	50	34	48
Satellite dish	11	4	3	1	0	1	0	0	14	6	20
Car parking	18	12	12	9	0	1	1	0	31	22	53
Sleeping at night-time*	0	2	0	0	0	0	0	0	0	2	2
Slaughtering sheep	0	0	2	1	1	2	2	1	5	4	9
Unused	11	3	6	8	50	20	81	35	148	66	214
Activity not involving women	262	176	127	117	64	54	35	19	484	366	850
Activity involving women	28	55	31	107	19	31	14	13	93	206	299
Total	290	231	185	224	83	85	49	32	577	572	1149

* Activities that would usually involve female members of the family.

Σ The numbers in the "Total" of the bottom row do not include the "Unused" category because it is not an activity.

These activities can be classified into three groups according to their degree of frequency. The first group is the very frequent activities, these include (starting with the most frequent) children playing, family sitting, storage, men sitting and hanging washing. The second group is the less frequent activities, which consist of use of a pathway (meaning that residents are using the yard just as a pathway or corridor to get to other places in the house), car parking, gardening and women sitting. The third group, being the least frequent activities, includes satellite dish installation and maintenance[1], slaughtering sheep[2], men's sports, and sleeping at night-time.

The main yard has the bulk of activities when compared to other yards (44% of the total number of activities, against 35%, 14% and 7% for Y 2, Y 3 and the backyard respectively). The activities of men sitting and children playing are found more in the main yard than in the other yards. The activities of hanging washing (others), women sitting (2), storage (others), use of a pathway (sides), slaughtering sheep (others) are found less in the main yard than in the side yards and backyard.

The main yard is popular for activities such as playing and sitting mainly for two reasons; a) it is usually the largest in terms of space, b) the main access to the house is usually through this yard for both residents and visitors, which makes it the most important and handy one, especially for men sitting, gardening and car parking.

In contrast to the main yard, the backyard is the least used yard in the house for all activities, whereas the number of activities taking place in the main yard, first side yard (Y 2) and second side yard (Y 3) is six, five and two times, respectively, more than the backyard. The reasons for this low use are related to the narrow size of the backyard and to the fact that houses in Saudi Arabia are generally designed to be oriented to the main and side yards rather than the backyard.

Investigating the activities data with consideration to overlooked yards in the case of activities involving women, the frequency of activities differs. Activities, such as men sitting and children playing are not affected by whether the yard is overlooked or not, but activities involving female family members, such as women or family sitting, are two to three times more likely to take place in a yard that is not being overlooked than in an overlooked yard, as can be seen below in Table 7-2.

Table 7-2: Activities involving and not involving women, abstracted from Table 7-1.

Yard	Main Yard		Yard 2		Yard 3		Yard 4		Total		
	Overlooking		Overlooking		Overlooking		Overlooking		Overlooking		All
Activity	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	
Activity not involving women	262	176	127	117	64	54	35	19	484	366	850
Activity involving women	28	55	31	107	19	31	14	13	93	206	299
Total	290	231	185	224	83	85	49	32	577	572	1149

Furthermore, even those few female members using the overlooked yards are using it because the overlooking neighbour rarely or never overlooks that yard. Where 16 (and 2) out of the 21 families, using their overlooked front yard for family sitting, state that their neighbour rarely (and never), respectively, overlooked their yard, only 2 families believed that their yard was sometimes overlooked by that neighbour.

This low level of female activities in overlooked yards produces strong evidence and support to the discussion and argument made earlier in Chapter Two, regarding the socio-cultural values of Saudi Arabian families. Therefore, it is possible to state here, with support from both theoretical and practical evidence, that the majority of Saudi Arabian females prefer not to use their house yards if they are overlooked by neighbours.

Moreover, another fact can be drawn from the 'Total' row in the previous table, when comparing the total activities that involve and do not involve women: the total activities not involving women are about three times as frequent as the activities that involve women. This proportion is less in the 'No overlooking' yard, but the ratio is 5:1 in the 'Overlooked' yards. Therefore, another fact that can be drawn here from Table 7-1, is that women's outdoor activities are much less frequent than men's or children's' activities in the surveyed houses. The

reason, most probably, is because most women's activities take place inside the house, leaving less time or need for outdoor jobs.

7-2-1-3 Unused Yards and Reasons for Non-use

The rate of unused yards depends on the location of the yard in the house. Data in Table 7-1 show that the number of residents claiming that their backyards are unused is almost ten times the number not using the main yard. There are two factors behind this. Firstly, this is due to the general house design and the orientation of the front yard and one of the side yards, leaving the backyard and the other side yard without direct access. The second, relates to size of the yard and to the things placed in that yard, such as an external sitting room, storage or laundry, which in turn would generate more activities.

Generally speaking, the external sitting room with a toilet is located in the front yard for ease and direct access, and for preserving house privacy when receiving visitors. The external storage, kitchen or bathroom would usually be located in the largest side yard. These two reasons explain the very low number of unused yards in the "Main Yard" and "Yard 2" categories in Table 7-3 below, when compared to "Yard 3" and "Yard 4".

Table 7-3: Unused yards, abstracted from Table 7-1.

Yard	Main Yard		Yard 2		Yard 3		Yard 4		Total		
	Overlooking		Overlooking		Overlooking		Overlooking		Overlooking		All
Activity	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	
Unused	11	3	6	8	50	20	81	35	148	66	214
Pathway	3	5	9	4	17	20	4	3	33	32	62
Unused and pathway	14	8	15	12	67	40	85	38	181	98	276
Total*	287	226	176	220	66	65	45	29	544	540	1087

* Total of other activities

As using the yard as a pathway is not considered a residential activity in itself, because it is merely a connecting corridor linking two spaces, therefore if this connection was made directly, there would be no need for the pathway yard, and it would become an almost useless space. Thus, it is possible to add the yards used as pathways to the "unused" category.

On average, 2 out of every 10 yards are 'unused' in the residents' opinions, most of these unused yards fall in the "Yard 3" and "Yard 4" categories (where Yard 3 stands for one of the side yards and Yard 4 is the backyard), as seen in Figure 7-3. Also, comparing the numbers of yards in the "Total" and "Unused and pathway" in Table 7-3 shows that about half the residents believe that their "Yard 3" and "Yard 4" are unused. This rate increases significantly if only the overlooked backyards are considered, as about two-thirds of residents regard them as unused spaces. This implies that overlooking is a considerable force discouraging residents from using their yards, even for non-female activities.

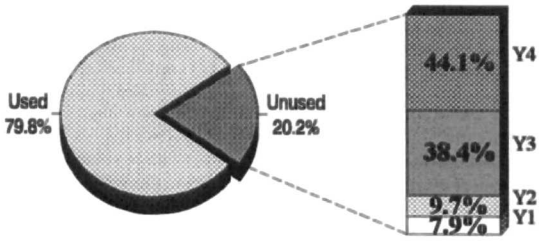

Figure 7-3: Percentage of residents not using their yards.

Nevertheless, even those few residents using their backyard use it for activities such as storage and hanging washing, which are carried out there mainly because the yard is simply an empty and useless space, and these activities could be relocated to any other suitable place in the house, such as a side yard, if the backyard did not exist.

In another question, the residents were asked if there was any yard in their house which they believed was useless and a waste of space. Only 11% of them stated that there were none, 12% stated all house yards were a waste and the

remaining 77% mentioned one or two of the yards as wasted or useless. In another question, concerning whether there was any yard the residents believed was particularly important and useful, the residents gave similar answers to the first question, see Appendix-Tables 7-1 and 7-2.

Most residents blamed, firstly, the narrow width of the yard and secondly, overlooking as the reasons for yards being useless. While the majority of residents (173 residents) stated their reason for believing that the yard was useless was due to its narrow width, the others (86 residents) blamed the overlooking problem, and some (16 residents) stated that the yard was too far away, referring here to the backyard, see Appendix-Tables 7-3 and 7-4. Nevertheless, all different factors affecting the use of yards are discussed in the following two sections. The first section investigates the physical factors of the house's characteristics, the second section examines the residents' background and characteristics.

7-2-2 Effects of the House's Physical Characteristics on the Use of Yards

7-2-2-1 Reasons for Yards being Overlooked

The main reason for yards in villas being overlooked is strongly related to the planning regulations applied to these dwellings, and to the out-looking house form imposed by these regulations. The planning regulations forced residents to build their houses according to setback from all sides. This setback has created yards surrounding the houses. Almost all the rooms in the house had to be designed to look out onto the yards, in order to allow in sunlight and natural ventilation. This has of course led to the fact that most of these yards and windows are exposed to neighbours overlooking, especially from first floor windows or from the roof.

However, this matter has been researched and discussed extensively in earlier chapters. Here, attention will be given to overlooking, in order to assess the physical conditions and characteristics of the building that could increase or decrease the degree of overlooking, and how this affects the use of yards by residents.

In terms of number and percentage, it is found that the majority of overlooking is done by neighbouring villas. Only a very small percentage is done by high-rise buildings (these are commercial/residential buildings of 4-7 floors, and usually they are located on the main roads in the city, in King Fahad suburb only) and medium-rise buildings (these, also, are commercial/residential buildings but of two to three floors, and usually located at the main roads around and sometimes inside the suburb, present in all suburbs).

The reason for this high presence of villas is, naturally, due to land-use planning and subdivision. As the surveyed suburbs are residential areas, the residential villa dwelling forms the large majority of building types. Thus, most of the surveyed houses are surrounded by other villas. However, some houses happened to be adjacent or close to other types of residential dwellings (such as medium and high-rise commercial/residential buildings) or different types of land-uses (such as educational, commercial or recreational), see Appendix-Tables 7-5 to 7-8.

The types of buildings surrounding the surveyed houses have different proportions according to the suburb, which is related, in turn, to the goal of the land-use planning of that suburb, as well as the age of the suburb. For example, it is found that al-Dhaharah and Sulimanya have the highest percentage of houses that are adjacent to other types of landuses or buildings, while al-Shifa and Nahdha have the highest proportion of houses that are adjacent to villas or the same land-use type. The mix of use in al-Dhaharah, for example, was due to the

fact that it was the only newly-developed suburb in Haqil, and it had to accommodate most of the public services for the town, since the old part of the town could not provide the required area for these services, such as schools, clinics and government buildings.

Another significant surroundings around the surveyed villas is the vacant residential plots . These plots are mostly for proposed villas which have not yet been developed and built upon. As there is no land taxation of any kind in Saudi Arabia, these land owners are under no pressure to develop and build on their land. They are simply waiting for their land value to increase in order to sell it and make the maximum possible profit, or waiting to save for the costs of building their house, or waiting for their turn to get a government housing loan which they prefer as it is interest-free. This of course has led to the presence of a large proportion of undeveloped lots in the surveyed areas, as well as other cities and towns in Saudi Arabia.

According to the results of the survey, the vacant lots present a proportion starting from about 10% (in King Fahad and al-Sulimanya) up to 50% (in al-Shifa, al-Nahdha and al-Rayan) of the lots surrounding the surveyed houses, see Appendix-Tables 7-9 to 7-12. This percentage depends largely on how old the suburb is, because the older the suburb the less vacant land it will have. There are, also, other factors that might affect the speed of development of this vacant land, such as the available level of infrastructure and the market value of this land.

Nevertheless, as regards overlooking, these vacant lots have provided adjoining houses with the advantage of escaping overlooking from that direction. But, this advantage is short-lived: as soon as the vacant land is developed, the residents of both houses will have to face the reality of overlooking problems, and will have to find a way to deal with it.

7-2-2-2 Level of Overlooking of Yards

It is obvious to say, from previous findings and discussion, that the higher the degree of overlooking, the less the residents' use of their yards, especially in the case of activities involving female members of the family. But this degree of overlooking depends on other factors as well. For example, the different types of buildings surrounding the surveyed houses have different degrees of overlooking, thus affecting the residents, use of their yards.

Figure 7-4 shows that the level of overlooking from high-rise buildings onto the surveyed houses is much greater than from medium-rise buildings, but both of them create a much higher degree of overlooking violation than overlooking from adjoining villas. Almost all residents adjoining high-rise and medium-rise buildings, stated that their yards were always or often overlooked by these buildings' residents. The residents' opinions regarding overlooking from adjoining villas depended on the degree of overlooking. Evidently, residents of high-rise and medium-rise buildings could easily overlook neighbouring villa yards, as their buildings are two to three times higher. Thus, locating these buildings next to or close to villas, leaves these villa yards exposed to observation by any person looking out of the windows of these higher buildings.

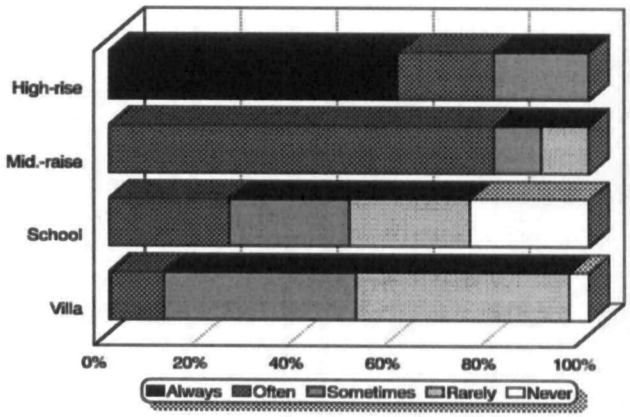

Figure 7-4: The level of overlooking onto yards according to the types of overlooking building.

In the case of overlooking between villas, the differentiation in opinion regarding the degree of overlooking is related to several factors. First, the

personal attitude towards socio-cultural principles. Residents realise that when they are overlooking their neighbours in their yards, in fact they are violating their neighbours' privacy, and thus committing a sin or wrong-doing. Therefore, there are residents who would abstain by themselves from looking out of the window if that is going to violate their neighbour's privacy.

Second, depending on the strength of social relationships between neighbours, residents tend to avoid overlooking their neighbours' yards as far as possible, if they have a good relationship with them. However, if relationships are weak, they probably would not hesitate to look out of their windows, even if they know that their neighbours might be in their yards. Adding this case to the residents who do not believe that overlooking one's neighbour's house is a sin or wrong-doing, presents the two most common types of persons and forms of privacy violation between villas and their residents.

Third, in the case where neighbouring villas overlook each other, they usually respect each other's privacy and tend not to overlook the other party's yards. There are, also, other minor factors affecting the degree of overlooking, such as room use, age, and sex, which will be investigated and discussed in the following chapter.

However, regarding overlooking from schools, it depends largely on the design of the school and whether it is a boys' or a girls' school, and the age group of the pupils. In terms of design, the height of the building and location of windows play the major roles in determining the overlooking effects a school will have on its adjoining villas. For example, a school building of three storeys would easily create more overlooking problems to near-by villas, than a two or single storey school.

Having related the degree of overlooking to use of yards, and analysed the correlation between them, it is concluded that the greater the degree of

overlooking the less residents are going to use these yards. This correlation is even stronger when examining female activities. For instance, none of the female residents use any yards that are always or often overlooked, as can be seen in Table 7-4. Only a tiny proportion of women sometimes use overlooked yards, while the vast majority of yards used by females are the ones that are not overlooked or rarely overlooked.

Table 7-4: The residents' use of yards according to the degree of overlooking

Activity	Overlooking Degree						
	Always	Often	Some-times	Rarely	Never	Total	No over-looking
Men sitting	1	8	28	42	2	81	57
Women sitting*	0	0	0	6	1	7	39
Family sitting*	0	0	6	28	6	40	107
Children playing	1	18	57	80	8	164	157
Hanging washing*	0	1	11	29	2	43	58
Storage	0	14	33	43	5	95	55
Pathway	0	8	11	12	2	33	32
Men sports	0	0	4	3	0	7	2
Gardening	0	5	13	30	2	50	34
Satellite dish	1	1	7	4	1	14	6
Car parking	0	1	10	18	2	31	22
Sleeping at night-time*	0	0	0	0	0	0	2
Slaughtering sheep	0	1	3	1	0	5	9
Unused	2	18	60	65	3	148	66
Activity not involving women	2	56	166	233	22	523	374
Activity involving women	0	1	17	70	9	90	206
Total	2	57	183	303	31	613	580

* Activities that would usually involve female members of the family.

The only exception to this correlation concerning female activity is the category of hanging washing, where the relation between the degree of overlooking and the use of overlooked yards is much weaker. The reason is mainly due to the fact that hanging washing is usually the job of housemaids, whenever they are employed by households. These housemaids are usually from foreign countries, where segregation between men and women is much weaker

than in Saudi Arabia, and they would therefore not pay very much attention or be bothered if they were being overlooked by neighbours while hanging the washing, especially if they are non-Muslim.

Therefore, it is possible to conclude that female members, using the highly overlooked yards for hanging washing, are mostly housemaids. This is clear when relating this correlation to the families having housemaids, see Table 7-5. It is found that families who do not have housemaids use the overlooked yards for hanging washing much less frequently than families who have house maids.

Table 7-5: Families with/without house maids and use of yards for hanging washing.

Yards	Families with a housemaid	Families without a maid
Not overlooked	30	28
Overlooked	32	11

For other activities, a weaker relation can be found between the degree of overlooking and use of the yard. For example residents using their yards for men sitting and gardening are more often in the 'sometimes' and 'rarely' overlooked categories than the 'always' or 'often' ones, as in Table 7-4. The reasons perhaps are that even male members of the family are concerned with overlooking, and would not like to be watched by neighbours while they are sitting down and having a chat with their guests.

However, on the other hand, activities like children playing or car parking show no significant correlation regarding the degree of overlooking. Perhaps this is because children do not care if there is a neighbour overlooking while they are playing, or, alternatively, children playing or someone parking a car is not something interesting to watch from the observer's point of view, especially if compared to men or family sitting. However, this, and the resident's perception and definition of privacy, is going to be examined further in the following chapter.

7-2-2-3 Place of Overlooking

The survey findings show that almost all yard overlooking takes place from the first floor windows of neighbouring villas. Only a very few residents mentioned that their neighbour's overlooking took place from the roof or other upper floors, see Figure 7-5. In this respect, a very interesting comment came from two residents who complained that even though they had built extra fences, in order to prevent overlooking from their neighbour's first floor windows, the neighbour still sometimes overlooked their yard from his rooftop. Because of this, both of them were thinking of increasing the height of their extra fence to block that neighbour's view. This would make the total height of the original fence and the extra fence about 10 metres, almost equal to the height of the villa itself.

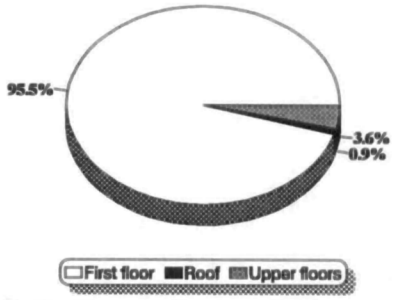

Figure 7-5: Percentage of place of overlooking

However, although the percentage of neighbours overlooking from roofs is tiny (less than 1% of the total overlooking), in the residents' opinions, overlooking from the roof is a more intrusive activity than overlooking from first floor windows, see Figure 7-6. On the other hand, regarding those villas adjacent to medium-rise and high-rise buildings, the neighbours overlooking takes place from windows on all floors. Comparing overlooking from villas (whether from first floor windows or the rooftop) on one hand, and medium-rise and high-

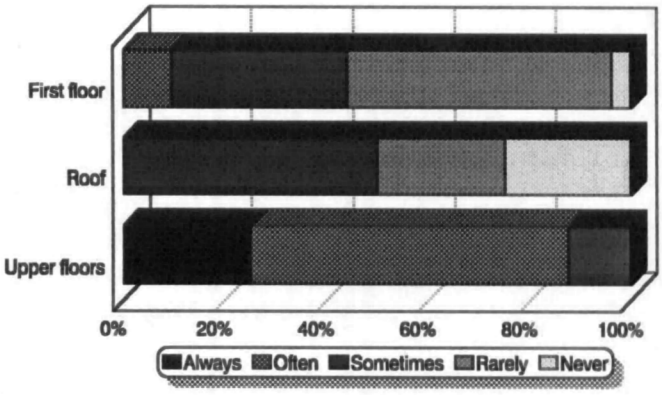

Figure 7-6: Degree of overlooking according to the place where overlooking takes place from.

rise buildings on the other, shows that the degree of overlooking resulting from the latter buildings is much higher than from villas, as illustrated by Figure 7-6. This difference is most probably due to three reasons. Firstly, the number of windows and residents living in these medium-rise or high-rise buildings is very high, if compared with a villa. Thus, the accumulated number of overlooking violations from these windows would also be high, and would quite naturally lead to a higher level of overlooking.

Secondly, due to the large number of families in taller residential buildings, the neighbouring villas' residents tend to have a much weaker relationship, or even no relationship, with these high-rise residents. This, in turn, leads to an insensitivity on the part of the higher buildings' residents about overlooking the neighbouring villa yards. At the same time, it is very hard for the villa residents to identify who is overlooking, to talk to him in order to prevent or minimise this overlooking.

Thirdly, as these buildings are very tall, building an extra fence would be very costly, very hard to construct, and very unpleasant looking, making it almost an unfeasible solution. Nevertheless, it is worth mentioning here that a resident in Tabuk has built an extra fence covering the whole four floors of a building that was overlooking one of his yards. This resident was able to erect this huge fence, only because he happened to own the medium-rise building, and was also able to afford the heavy costs of constructing such a structure, and could therefore bear the unpleasant look of the fence as well as its costs in terms of lower rental revenues, see Figure 7-7.

7-2-2-4 Yard Size

As almost all the lots are of square shape or close to it, it is the yard's width that determines yard size in the house. This yard width depends on three factors, the setback requirements, the lot dimensions and the residents' needs and

priorities when building their house. When planning and designing the house, priority is given first to spaces needed indoors. After arriving at the built up area required, the resident and his architect, would apply the planning regulations (mainly the setback and site coverage regulations), in order to see what area of the lot will be left. Most commonly, the residents only consider at this stage his outdoor space required, where he would locate this leftover area for the yard, or yards, he and his family prefer and need most.

Figure 7-7: A five storeys building covered totally by an extra fence from the sides overlooking the owner's villa yards, Tabuk.

Usually, residents locate this spare lot area as the main yard, or one of the side yards, or both. As Figure 7-8 illustrates, the yard width varies considerably according to the yard location, where the main yard is generally the largest one in the house, followed by one of the side yards, while the other side yard and the backyard are the smallest ones, particularly the backyard where almost three out of every four backyards of the surveyed houses are of two metres or less in width.

However, increase in setback requirements does not particularly lead to increase in yard width, as residents would provide the minimum setback requirement for each side of the lot, and would then increase the size of the yard they prefer, which is not, in many cases, the one with the largest setback requirement.

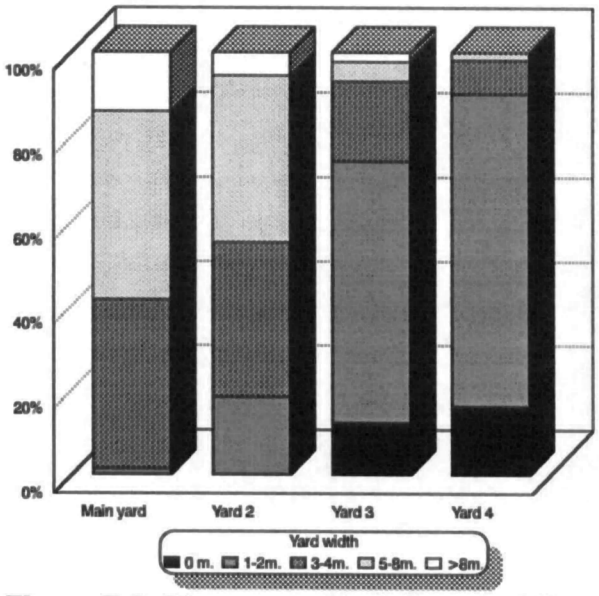

Figure 7-8: The proportion of yard widths in terms of their location.

It is found that there is a very strong correlation between yard width, or size, and the resident's use of yards. Yards of large width would generally have more residential activities taking place in them than the ones of smaller width, especially those of 2 metres and less. Furthermore, according to residents, there are 174 yards out of 331, of two metres or less in width, that are not being used by residents at all, see Table 7-6. This proportion will increase very significantly if minor activities such as 'use of pathway' and 'storage' are added to the 'unused' row (217 out of 331 if 'pathway' is added, and 285 out of 331 if 'pathway' and 'storage' are added).

Table 7-6: Residents' use of yards according to the yard width.

Activity	Yard width (metres)			
	0-2	3-4	5-8	8-∞
Men sitting	0	20	75	23
Women sitting*	1	14	26	4
Family sitting*	6	35	85	20
Children playing	23	117	149	38
Hanging washing*	51	40	5	0
Storage	78	61	10	1
Pathway	43	19	2	1
Men's sports	0	1	10	0
Gardening	4	22	45	17
Satellite dish	1	4	14	1
Car parking	0	14	25	10
Sleeping at night time*	0	1	0	1
Slaughtering sheep	7	2	0	0
Unused	174	38	2	0
Total*	**214**	**350**	**446**	**116**

* Excluding "Unused", as this is not activity.

Therefore, half of the yards of two metres or less are not used by residents. Also, adding yards used for storage and pathway to the equation means that the vast majority of yards of this size are not, or little, used by residents.

This sounds reasonable, because a yard of two metres in width would be very hard to use for any family activity, except for use of 'storage', 'pathway', 'slaughtering sheep' or 'hanging washing, activities which generally do not require wide or large spaces. On the other hand, there are activities which take place only in large yards, such as men sitting and parking cars, and to a lesser degree, women sitting, and installing the satellite dish. This is because these activities require large spaces in terms of length and width. For example, men and women sitting usually includes a large number of people, and most probably it would include guests also, thus small or narrow yards are not suitable for such activities. Also, parking a car in the yard needs a large space for both moving and parking.

However, another finding appears when overlooking is taken into account. It is found that wider yards are more exposed to overlooking, and also a lesser degree of overlooking is associated with narrow yards, especially when looking at the 'never' overlooked yards, which all fall in the width range of six metres and less, see Appendix-Tables 7-13 to 7-16. The reason behind this is that the fence surrounding villas is often of an average height of 3.5 metres, which will protect the yard from overlooking neighbours to a certain degree, relating to the yard width and how far away and high-up the overlooking neighbours are.

If the overlooking neighbour's height and distance are constant, then the increase in fence height would decrease the level of overlooking, but only to a certain range of yard width. In most cases yards of 5 metres or more in width are not protected by the average height fences. Also, the further the neighbouring villa is setback from the resident's fence, the less the degree of overlooking that

neighbour is going to cause. On the other hand, the greater the overlooking neighbour's height, the greater the possible area and degree of overlooking.

7-2-2-5 Yard Orientation

Two things are meant by orientation here, yard location in terms of direction (north, south, etc.), and yard location in terms of street and entrance (main yard, backyard, etc.). These two factors have shown some effects on overlooking and residents' use of yards.

In terms of yard directions, the residents showed some concern regarding the use of some yards more than others, favouring specific yard directions to others. It is found that the west yard is the least desired one for activities such as men, family and women sitting, although this was not very significant. For other activities or yard directions, no particular or significant findings were found, see Appendix-Tables 7-17 to 7-20.

Moreover, yards of large width are found much less on the west side of the house. The reason is related to the climatic conditions in all the three selected cities, where the west is the least desired direction, while the north is the most desired one. This is in order to catch the northern breeze and avoid direct sunlight, especially in both Tabuk and Haqil where the climate is pleasant on summer evenings.

In terms of yard location, Table 7-1 shows that the main yard and the secondary main yard are the most used ones in the house. As mentioned there, the reason is related to the location of the house's main entrance near these yards, as well as to the size, or, width of these two yards compared to the remaining two, as was illustrated in Figure 7-8. Therefore, it is possible to generalise here that yard location, in terms of direction, has very little effect on the residential use of yards.

On the other hand, the location of yards, in terms of street and entrance, usually has a very significant effect on the use of these yards

Furthermore, regarding the latter statement, there is also a strong correlation between yard width and use, as larger or wider yards generally have more activities than smaller ones. However, this is not a must, in some cases large side yards and backyards were used less than other yards in the house. In these cases, the large yard size and width did not lead to more residential use of these yards. The reason behind these exceptional cases is related to residents' preference for using other yards in the house, even though they were of lesser size. This is because of overlooking problems or the location of the entrance and rooms in the house.

7-2-2-6 House Size

It is found that yard size increases with the increase in lot area. This is because residents of large lots would have a greater area left to use for yards, while residents of smaller lots would generally give priority to indoor spaces first, then whatever is left would be used for yards. This is, of course, after fulfilling the setback and site coverage requirements first.

Furthermore, residents of smaller lots (less than 600 square metres), usually, leave only a small proportion of their lot for yards, and in many cases they leave none at all, especially in the case of lots that are less than 450 square metres, or where the resident is planning to let part of his villa. In these two cases, the residents would build the maximum possible area for the house itself, leaving the yards with only the minimum areas required by the planning regulations.

In order to support these statements with evidence, the four yards of the surveyed houses need to be investigated separately, as shown in Table 7-7. Thus, it is found that the main yards of small lots (less than 450 square metres) are

mostly 3-4 metres in width, while the main yard is 5-8 metres for medium size lots (between 601 and 900 square metres). Keeping this in mind, and appreciating that the minimum setback requirements for the main yard are mostly 3-4 metres from the street boundary, then it is clear that residents of small lots have provided only the minimum setback requirements for the main yard, and have given priority to indoor spaces over their main yard or other yards, where a similar proportion is found.

Table 7-7: The number of houses according to their lot size and yard width.

Lot Area (M2)	Yard width (metres)																
	Main Yard				Y 2				Y 3					Backyard			
	<2	3-	5-	>8	<2	3-	5-	>8	0	<2	3-	5-	>8	0	<2	3-	5-	>8
< 450	0	62	32	0	21	32	21	0	24	49	4	8	0	25	48	4	8	0
450-600	2	6	12	0	3	11	6	0	1	16	3	0	0	1	17	1	1	0
601-900	1	17	69	22	15	35	50	9	0	66	32	7	4	7	89	11	1	0
> 900	0	0	2	8	0	0	6	3	1	1	4	3	1	1	3	4	2	0
Total	3	85	95	30	39	78	84	12	26	13	40	10	5	34	15	17	4	0

This indicates that small size lots (less than 450 square metres) limit the residents' abilities to provide reasonably wide yards that can be of use and benefit for the residents. This can be observed more easily when comparing the quantity of yards of 3-4 metres in width in the different lot sizes, or between the quantity of 5-8 metres wide yards in these lot sizes. This comparison would indicate that residents of large lots have a much higher percentage of larger width yards than the residents of smaller lots.

Also, only 21 residents out of 157 have allocated more width to the backyard than the setback regulations require. Taking into account the negative effects of narrow yard width on residents' use of these yards, and the level of this use which is illustrated in Table 7-1, then it is possible to conclude that residents attach very little importance to the backyard, both in terms of space priority or

use. Furthermore, in the following section on "Mostly and rarely used yards", more evidence will be shown regarding the unimportance of the backyard in residents' opinions.

7-2-2-7 Yard Surroundings

This section will analyse the yard surroundings, which include the fence height, the location and height of an extra fence, if any, and whether there are any buildings inside or around the yards, as well as how all this affects the degree of overlooking and residential use of yards.

In terms of fence height, Figure 7-9 shows the proportion of house fence heights, according to the height groups they fall in. It was found that the average fence height of the surveyed houses was 3.2 metres. These fences are made of concrete, which does not allow visual observation through the wall, and is hard to climb over, to discourage theft. The main reason for erecting such high fences is to protect the houses domain, both physically and visually, from people outside the house.

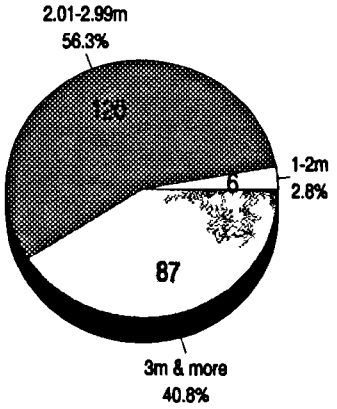

Figure 7-9: The fence heights of the surveyed houses.

The height of these fences protects any resident on the ground level of the house, from being observed by any person standing outside the house, but it is not going to protect the residents from a neighbour who is overlooking the yards from any level higher than this fence height, such as the neighbour's first floor windows or rooftop.

Nevertheless, the difference in fence heights shows no considerable effects on the degree of overlooking onto house yards. For instance, Appendix-Tables 7-

21 to 7-24 show that no matter what height the fence is, the degree of overlooking is kept almost constant, and shows no changes in relation to fence heights. This is because most overlooking takes place from the neighbouring first floor windows, which are not affected by a fence of ordinary height, but only by fences of considerable height, such as five metres or more.

However, the extra fence's presence and height shows a very significant correlation with overlooking from the first floor and rooftops of neighbouring villas, see Appendix-Table 7-25 to 7-28. Depending on the height and location of the extra fence, the residents have achieved considerable success in stopping or reducing the effects of overlooking, and this has led to an increase in the number of activities taking place in that yard, especially female ones. Besides, these extra fences are generally built after the residents move in, and therefore, after it is known where the source of the overlooking is coming from. The residents could therefore locate the extra fence in the right place, and make it of the required height, which will guarantee the termination of this overlooking source permanently.

These extra fences are of two types, vertical (which is called an 'extra vertical fence') and horizontal (which is called a 'horizontal fence cover'). The vertical fence is usually built on top of the concrete fence wall, to the height the residents prefer, but very rarely more than five metres. The horizontal fence is usually built on one of the main yard corners, with a height similar to the concrete fence wall, and of an area depending on the open space available, the protected area, and the financial capabilities of the residents. Figures 7-10 and 7-11 show photos for both fence types.

The horizontal fence cover has an extra advantage over the vertical one, as it also gives very good protection from the sun's heat during the daytime, which creates a pleasant space underneath it for children playing or family activities.

Although, the extra vertical fence give some protection from the sun, it is only limited to a certain time of the day, late afternoon or early morning, when the sun is not in the middle of the sky, and the fence should create some shade in the yard behind it. On the other hand, the vertical fence has an extra advantage, that it can also protect the windows of both villa floors from neighbours overlooking.

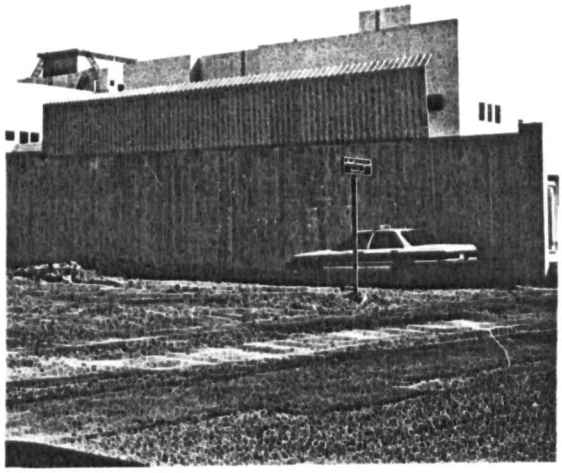

Figure 7-10: An extra vertical fence made of plastic sheets, built on the top of the concrete fence wall, in order to protect the yard from neighbours overlooking, al-Rayan, Riyadh.

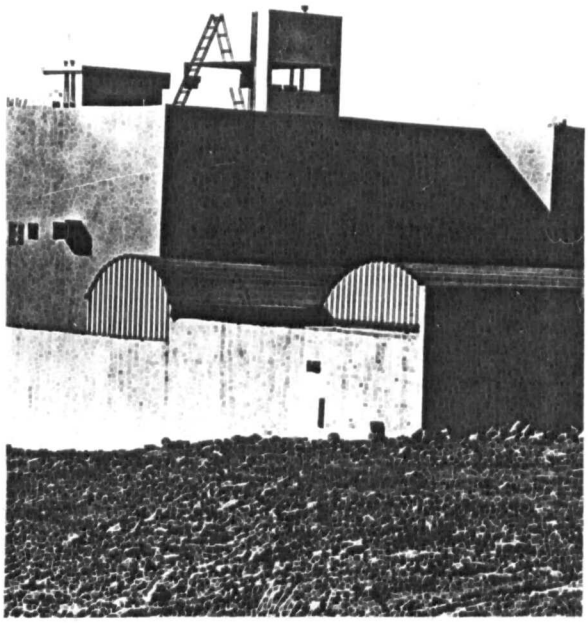

Figure 7-11: A photo of a house with a horizontal structure, built from steel sheets, in order to protect the yard under it from both neighbours overlooking and the sun's heat, al-Shifa, Riyadh.

Both types of fences are mostly made of steel frames, covered by corrugated plastic or steel sheets of various colours. Figure 7-12 reveals the number and types of the extra fences found in the surveyed houses. It also shows that about six out of every ten surveyed houses have one or more extra fences, built on the top of the yard wall, either vertically or horizontally.

However, the proportion of houses with extra fences varies between suburbs and cities. While these extra fences are found more in King Fahad and al-Erija, they are found much less in al-Nahdhah and al-Shifa, see Table 7-8. The reason is linked to the proportion of developed lots and vacant ones; al-Shifa and al-Nahdhah have the highest percentage of vacant land among all the surveyed suburbs.

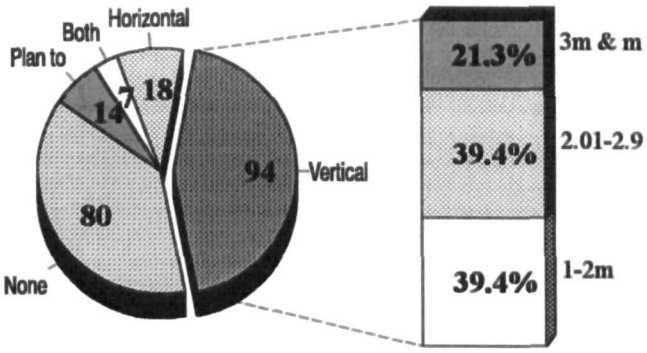

Figure 7-12: Number of houses with and without extra fences, and height of the extra fences.

Table 7-8: Number of houses with and without extra fences, and types of fences.

Extra Fence	Suburbs						
	Rayan	King Fahad	Erija	Shifa	Sulim-anya	Nahdhah	Dhaha-rah
1-2m (vertical)	3	5	6	4	4	7	8
2.01-2.99m (vertical)	3	7	11	3	6	4	3
3m & more (vertical)	1	6	4	0	6	2	1
Planning to add	5	2	0	0	4	0	3
Horizontal	5	6	0	6	0	0	1
Horizontal & Vertical	2	1	0	4	0	0	0
Do not have	12	5	8	13	11	17	14
Total*	19	27	21	17	20	13	16

* "Total" includes houses with extra vertical and horizontal fences and excludes the other houses.

Naturally, the presence of more vacant lots will reduce overlooking between villas, thus there will be less demand for building extra fences in these suburbs. The opposite can be said about King Fahad and al-Erija suburbs, as they are among the oldest suburbs and have the highest percentage of developed lots.

Furthermore, Table 7-8 shows, also, a high ratio of vertical extra fences in al-Erija (all the extra fences in the houses surveyed in al-Erija were vertical), which is related mainly to two factors. The first, is the setback requirements of the backyards in al-Erija, where houses are required to be setback at least six metres from the back boundary. Unfortunately, this is an ideal situation for maximising overlooking between backyards and adjacent back villas, where a resident standing in these backyards can be seen clearly and easily by a neighbour looking from his/her first floor window facing these yards, see Figure 7-13. Therefore, residents in these situations are faced with stronger overlooking problems, which force a higher proportion of them to build an extra fence in the backyard, especially when realising that this back yard is the one most used in the house, as it is the largest in terms of space.

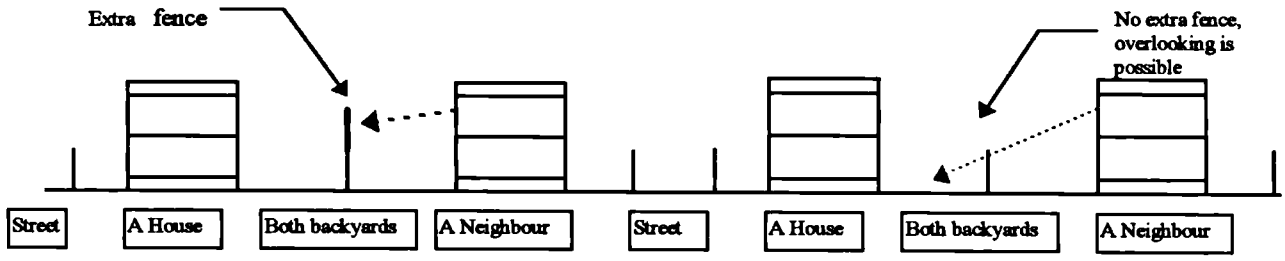

Figure 7-13: The back of two adjacent houses in al-Erija, the two on the left with a vertical extra fence, the one on the right is without an extra fence.

Also, none of the surveyed houses in al-Erija, al-Sulimanya and al-Nahdhah have a horizontal fence cover. The absence of this type of extra fence in al-Erija houses is related, first of all, to the small lot size (due to the setback regulations applied there). This in turn led to the presence of small front yards that are not useful for residents, even if they cover them with a horizontal fence cover. Also, as a result of these planning regulations, there are only two yards where windows can be opened, for sunlight and natural ventilation. The quantity of light and air entering these rooms, will decrease significantly if any of these

yards is going to be covered by a horizontal fence. Therefore, al-Erija residents preferred the extra vertical fence rather than the horizontal one.

As for the absence of the horizontal type of fence in both Tabuk's suburbs, it is most probably because this type is a new trend or method which is still not common in Tabuk, particularly as there is only one case found in Haqil, and according to a survey carried out in King Fahad suburb five years ago (al-Hemaidi, 1991), the horizontal type was less common than found in this survey. Thus it might take some time before it becomes common in Tabuk or Haqil. Anyhow, this type of fence cover is used in only a small number of cases in Riyadh (only 24 houses out of 120 surveyed in Riyadh had horizontal fence covers).

As far as city or settlement sizes are concerned, it is found that the proportion of villas with extra fences is relatively small in Tabuk and Haqil compared to Riyadh. This might be related to more than one factor. The first factor is economic background, as Tabuk and Haqil residents have a lower income level than Riyadh residents. The second factor is social background, as residents of smaller urban settlements have stronger social relationships and family ties than in large urban centres. The last two factors are physical: the percentage of single storey buildings in Tabuk and Haqil is higher than in Riyadh. Also the proportion of houses with small yards (2-3 metres), which rarely have an extra fence, is higher in Tabuk and Haqil than in Riyadh.

However, the horizontal fence cover is mostly used for yards of 6-8 metres in width, while the vertical one is used largely in smaller yards of 4-6 metres, see Appendix-Tables 7-29 to 7-32. This is because the horizontal fence cover is ideal in yards of medium width, as it will cover the whole width of the yard or the whole distance between the building and the fence wall, which will allow residents to move freely from and to the yard without being seen by any overlooking neighbour.

Also, an important point to remember is that the extra vertical fence is very useful in protecting first floor windows from overlooking, this explains why there are yards of two metres in width with an extra fence but these yards are rarely used by their residents. This is mainly due to the narrowness of these yards, which usually makes it very inappropriate for activities such as sitting or children playing.

Furthermore, this narrowness discourages residents from protecting these overlooked main yards by extra fences, as usually these yards will not be very useful for most of their activities in any event. This can be supported by the data in Appendix-Tables 7-29 to 7-32, where yards without extra fences are usually the narrow ones, of 3-4 metres in the case of main yards and 2-3 metres in the case of other yards. On the contrary, the vast majority of yards with an extra fence are wide, four metres and more in width. Nevertheless, residents of houses with very large yards (exceeding 10 metres in width) very rarely use the horizontal type of cover, as they seem to prefer the vertical one due as it is open from the top which makes plantation possible.

When comparing residential use of yards with an extra fence and overlooked yards without an extra fence, it is found that there are two significant increases. The first increase is in the number of activities in total, especially when considering the unused yards, as can be seen in Table 7-9. The second is an increase in the proportion of activities involving female members of the family.

For example, there are 26 'not overlooked' main yards in the survey with an extra fence, 13 of these yards are used for family sitting, while only 21 out of 123 'overlooked' yards are used for this activity, see Table 7-9. A very similar proportion is found in the case of the other yards, while far fewer unused yards are found in the category of protected yards with extra fences, when compared to the number of unused yards that are overlooked.

Table 7-9: A comparison between the number and ratio of some residents' activities taking place in yards that are not overlooked - and protected by an extra fence - and overlooked yards.

(The first number of the ratio indicates the number of yards used for this activity, while the second number indicates the total number of activities in the yard. The number between the brackets indicates the percentage of this activity to the total number of activities in that yard.)

Activity	Main Yard		Y 2		Y 3		Backyard	
	Not over-looked	Over--looked	Not ov-erlook.	Over-looked	Not ov-erlook.	Over-looked	Not ov-erlook.	Over-looked
Family sitting	13:26 (50%)	21:123 (17%)	28:57 (49%)	14:91 (15%)	5:26 (19%)	3:113 (3%)	0:13 (0%)	1:117 (1%)
Men sitting	17:26 (65%)	67:123 (55%)	2:57 (4%)	14:91 (15%)	0:26 (0%)	0:113 (0%)	0:13 (0%)	0:117 (0%)
Women sitting	3:26 (12%)	4:123 (3%)	16:57 (28%)	2:91 (2%)	2:26 (8%)	0:113 (0%)	0:13 (0%)	0:117 (0%)
Children playing	19:26 (73%)	100:123 (81%)	37:57 (65%)	56:91 (62%)	3:26 (12%)	12:113 (11%)	0:13 (0%)	0:117 (0%)
Unused	0:26 (0%)	11:123 (9%)	0:57 (0%)	6:91 (7%)	6:26 (23%)	50:113 (44%)	5:13 (39%)	80:117 (68%)

Furthermore, it is most probably clear from Table 7-9 that backyards are hardly ever used for these activities, even if they are protected from overlooking by extra fences. This is again related to the narrowness of the backyard and its distance from the main yard and entrance. However, the next section will illustrate the reason for this neglect of backyards according to the residents responses.

7-2-2-8 Yard Mostly or Rarely Used

When residents were asked if any of their yards were not of great use to them, 8 out of 10 answered that there were one or two useless yards, while 1 resident said all of his yards were of great use, the remaining one stated that all of his yards are of no great use, see Appendix-Table 7-1. Moreover, the residents who stated that they thought there was one or more of their yards that was of no great use were asked the reason behind this. Approximately 60% of them blamed

the narrowness of these yards, while 30% blamed overlooking and 10% claimed that the yard was too far away, see Appendix-Tables 7-2 and 7-4.

Therefore, when further investigating those residents blaming the narrowness of their yards, it is found that most of these wasted yards were of 2-3 metres in width, especially Y 3 and the backyard, as they are usually the narrowest. This gives further evidence of the low residential use of narrow yards, and from the mouths of the residents

On the other hand, when looking at the residents blaming overlooking for making the yard less useful, it appears that their yards were of no specific width or size. This indicates that some residents abstain from using their yards for most of their activities because they are overlooked, whether for activities involving female members of the family or other activities. The backyard was the yard most residents regarded as of no great use. Figure 7-14 illustrates that 99 residents out of 190 pointed out the backyard as the most wasted yard, while only 15 residents identified the main yard as the most wasted one. However, if al-Erija residents are excluded, then an even more emphatic result appears. As regards the main yard, only one resident considered this yard as the most wasted one, which means that all the remaining 14 residents were from al-Erija, as can be seen from Figure 7-15.

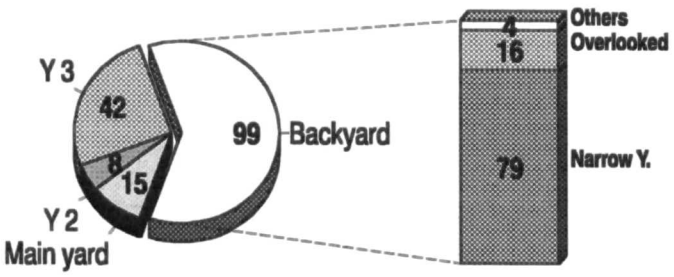

Figure 7-14: The most wasted yards in the house.

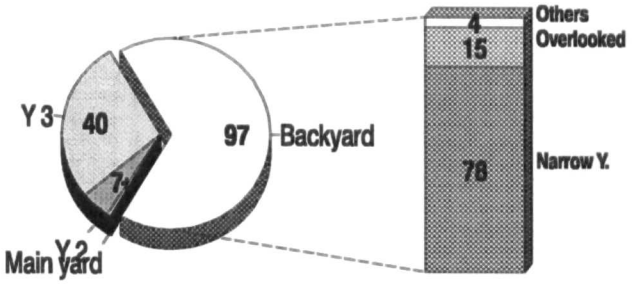

Figure 7-15: The most wasted yards in the house, excluding al-Erija houses.

On the other hand, the percentage of residents who identified the backyard as the most wasted one, remained almost the same, which indicates that only a few residents from al-Erija pointed out the backyard as the most wasted one. This, also, indicates that al-Erija residents disagree with almost all other residents, regarding the importance of the backyard. The reason is because al-Erija residents consider the backyard as the most important and useful one, as their houses usually have only two yards, and the backyard is the largest in terms of size and width.

Moreover, Table 7-10 illustrate that residents of larger lots consider the backyards of no great use more often than the residents of smaller lots. This is related strongly to the fact that most of the smaller lot yards are of narrow width, which makes the backyard hard to distinguish from other yards. In the case of larger lots, where there are much larger yards, residents tend to distinguish easily between their yards in term of size or width and pin-point the backyard as the smallest, as it is generally the smallest in terms of space.

Table 7-10: The percentage of residents stating they have yards of no great use, according to lot size

Yards	Lot Area (square metres)			
	<450	450-600	601-900	>900
Main yard	30%	0	1%	0
Y 2	4%	11%	4%	0
Y 3	21%	26%	25%	50%
Backyard	45%	63%	70%	50%
Total	100%	100%	100%	100%

Another finding regarding lot size 21 residents out of the 25, who claimed that all their yards were of no great use, were owners of small lots (less than 450 square metres). The reason for this high number of smaller lot residents is again linked to the presence of smaller yards in these houses, as well as to overlooking problems (although this is a less important factor, see Appendix-Table 7-33). However, the findings indicate that residents of small lots use their yards much less, and are unsatisfied about the small size of their lots and yards.

As far as the most useful yard in residents' opinions is concerned, only 20 residents out of 213 stated that none of their yards was of great use, see Appendix-Table 7-34. Those were mainly owners of small lots, in al-Nahdha, al-Dhaharah and al-Erija, who have the highest percentage of small yards, when compared to other lots in the same suburb or to other suburbs.

The majority of residents were specific regarding which yard was the most useful to them, the vast majority pointing out the main yard as the most useful one in the house, followed by Y 2. Very few residents identified Y 3 or the backyard as the most or even one of the most useful yards, and most residents who did so were from al-Erija suburb.

When residents were asked about the reason for choosing the main yard as the most useful yard, the most repeated reason was "because of its large size", while the second reason was "because it is protected form overlooking". The second reason came largely from residents with main yards that were not overlooked, see Figure 7-16. Nevertheless, other interesting reasons, even though they were a small proportion of the answers were the location of the main entrance to the house in that yard, and that the yard caught a nice breeze, particularly in Haqil, which has a nice cool northern breeze in summer.

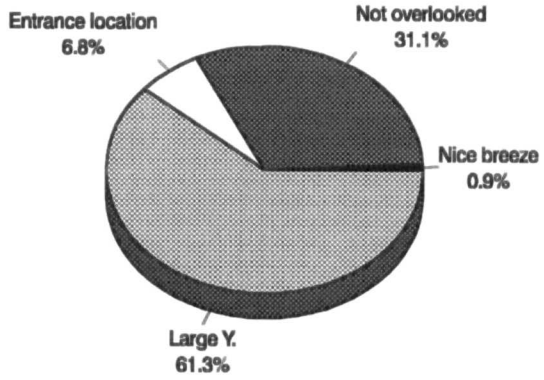

Figure 7-16: Percentage of reasons for residents choosing the main yard as the most useful one.

However, it seems to be that residents of larger lots view their main yard as more important slightly more often than the smaller lot residents, as can be seen in Table 7-11. At the same time, the smaller lot residents view Y 2 as important slightly more often than large lot residents do. This is most probably related to the

fact that almost all small lot yards are of small sizes or widths, thus the yard size will not be a major factor in determining which yard is important here, as most of them are of similar size. By contrast, residents of larger lots would distinguish between their yards quite easily, as they are of various widths. Therefore, small lot residents place more emphasis on other reasons for yard usefulness, such as protection from being overlooked.

Table 7-11: The percentage of residents stating their most useful yards according to the lot size.

Yards	Lot Area (square metres)			
	<450	450-600	601-900	>900
Main yard	66%	75%	81%	75%
Y 2	30%	20%	14%	25%
Y 3	0%	5%	5%	0%
Backyard	4%	0%	0%	0%
Total	100%	100%	100%	100%

Table 7-12: Number of residents activities according to the degree of yard usefulness.

Activity	Not useful yards		Useful yards	
	All Y.	None	All Y.	None
Women sitting	2	4	2	1
Family sitting	6	19	12	5
Gardening	7	10	8	4
Unused	14	0	4	16

Furthermore, it is found that the residents who stated that none of their yards were of great use, showed little use of their yards, especially when compared to those who stated that all their yards were of great use, see Table 7-12. This is even clearer when looking at the unused yards row, where 14 residents stated that all of their yards were totally unused, there was no unused yard for residents claiming that none of their yards was totally unused.

7-2-2-9 Yards Most and Least Violated by Overlooking

It is found that the majority of residents believe that their main yard is the most violated by neighbours overlooking. As can be seen from Figure 7-17, Y2 and Y3 came in second and third places respectively, while the backyard came in last place. The differences between the yards are minor ones, yet as the main yard is the most useful one for the majority of residents and the backyard is the

least useful one, residents are most probably more sensitive to overlooking in their main yard than the other yards. Therefore, bearing this point in mind, and the fact that these differences are minor ones, it is possible to conclude that almost all yards are exposed to overlooking, but residents are generally more aware of overlooking onto their main yard.

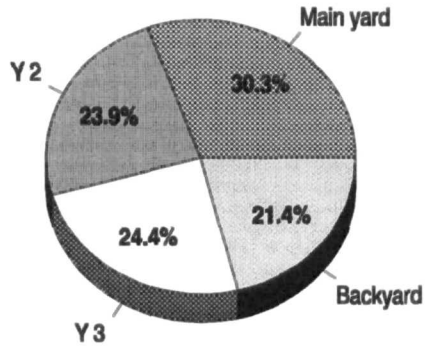

Figure 7-17: The most overlooked yard according to residents' (in percentages).

Furthermore, it appears that the smallest the yard size, the more likely it is that differences in the degrees of overlooking become smaller, while the differences in large lots become greater, see Appendix-Tables 7-35 to 7-38. There are two reasons behind this. The first is that the degree of overlooking in smaller yards is less than that in larger yards, as was explained in an earlier section of this chapter. The second reason is, with increase in yard size, there is an increase in the importance of these yards in residents' minds, thus residents would view the overlooking violation into their larger yards (mostly the main yard) as more significant than overlooking onto smaller yards.

However, this degree of overlooking violation is reflected quite clearly in the residents' use of these yards. By looking at Table 7-13, it is found that the activities in the yards which were not signalled as the most overlooked are more frequent than activities in the yards which were indicated as the most violated ones. Activities such as the family sitting and women sitting are three to four times more likely in the yards which were not indicated as the most violated ones.

Table 7-13: Comparison between residential use according to the residents' indicating that a certain yard was the most overlooked one and residents indicating other yards as the most overlooked.

(The column with the "Indicated" heading, refers to the number of activities stated by residents pointing out that yard as the most overlooked one; the "Not indicated" column refers to the number of activities stated by residents who pointed out other yards as the most overlooked ones.)

Activity	Main Yard		Y 2		Y 3		Backyard	
	Indicated	Not indicated	Indicated	Not indicated	Indicated	Not indicated	Indicated	Not indicated
Family sitting	13	50	6	64	2	9	0	3
Men sitting	52	60	10	9	0	1	0	0
Women sitting	3	10	2	27	1	3	0	0
Children playing	65	110	29	104	6	12	0	0
Gardening	31	29	4	7	4	6	0	3
Unused	7	7	0	10	6	57	22	94
Total No. of activities	164	259	51	211	13	31	0	6

Σ "Total" row does not include the unused yards.

Even for activities such as children playing and gardening - thought to be very little affected by overlooking - are less frequent in the yards indicated as the most overlooked. The 'Unused' row illustrates, further, the difference between overlooked yards and those less or not overlooked, in terms of residential use, especially in the case of Y 3 and the backyard.

7-2-3 Effects of the Residents' Characteristics on Yard Use

7-2-3-1 Household size

Altogether, it is found that the number of activities taking place in yards greatly increases with household size. This is, of course, due to the increase in the number of family members, which would generate additional activities. Table 7-14 illustrates the percentage of activities taking place in house yards according to the household size. There are some activities that are practised by larger

households more than smaller ones. These include, women sitting, storage, gardening, car parking and slaughtering sheep. On the other hand, some activities were used almost equally by all sizes of household, such as children playing. This is because the latter activity occurs in almost all families, regardless of their size, while the former activities are going to be more common in larger families, since there in an increase in the number of participants (women sitting and gardening) or in demands for certain spaces or goods (car parking, storage and slaughtering sheep).

Table 7-14: The number of residents' activities in yards according to the household size (in percentages).

Activity	Household size (persons)		
	4-6	7-9	>9
Men sitting	11	9	11
Women sitting	3	3	5
Family sitting	12	13	10
Children playing	26	28	26
Hanging washing	10	8	6
Storage	11	9	13
Gardening	4	8	7
Car parking	2	5	5
Slaughtering sheep	0	1	1
Unused	19	16	16
Total	100%	100%	100%

On the other side, activities such as the family sitting and hanging washing are used more by smaller households than larger ones. The reason behind this is because these smaller families are usually young couples raising a family, thus they have less time to spend in social relationships when compared to larger and older families. Also, most of these smaller families are either renting their house or own a smaller house than the larger families. If a family is renting its residence, then it is most probably renting the ground floor of a house and will use its yards for hanging washing, as the roof is usually used by the first floor tenant.

As far as the unused yards are concerned, it is found that there is little change in the percentage of residents claiming their yard or yards are not used according to household size, except that the small households showed a slightly higher number of unused yards, which is related to the small number of family

members, thus needing less yard space and using only the main parts of the important yards, leaving the remaining yards unused.

7-2-3-2 Income

Differentiation of income appears to have some effects on the residents' use of their yards. Table 7-15, illustrates that there are some activities which are practised by residents of higher income more than lower income residents. For example, the activities of women and family sitting are practised much more by the higher income families than in the lower income ones. At the same time, men sitting shows very little difference between income groups.

Table 7-15: Residents' use of yards according to their income group.

Activity	Income groups (%)		
	Low	Middle	High
Men sitting	11	10	9
Women sitting	3	4	6
Family sitting	6	12	10
Children playing	28	26	18
Hanging washing	10	7	10
Storage	16	11	7
Satellite placing	1	2	2
Gardening	2	6	13
Car parking	2	4	11
Slaughtering sheep	1	1	0
Unused	20	17	14
Total	**100**	**100**	**100**

The survey results show that, higher income families prefer to use their yards for women and family gathering more often than lower income families. This is related mainly to the larger yards in the houses of higher income residents, and also perhaps to the fact that higher income male members have less time for men sitting and receiving guests, or maybe they prefer to use indoor spaces rather than outdoor ones.

On the other hand, the children of lower income families use their yards more than their counterparts in higher income households. This could be linked to the fact that higher income residents have more indoor spaces for children's' activities, such as games rooms or indoor swimming pools or a gymnasium. Therefore, children of lower income families are faced with fewer choices than

children of higher income households as regards suitable indoor places for playing.

7-2-3-3 Education

Again, some residential activities are affected by the residents' educational background. While activities like slaughtering sheep are practised more by residents with a less educational background, car parking and gardening are practised less by these residents, as shown in Table 7-16. The reason behind this is probably related to the fact that most of the less educated residents have a lower level of income, and are mostly from a nomadic background. Therefore, these residents prefer to slaughter their animals themselves, as they used to do, or their fathers used to do, before they settled down and became city dwellers, as a way of keeping up tradition and maybe to reduce costs. Also, they might feel discouraged from practising some activities, such as gardening, because they have less yard space and fewer house helpers, such as house maids or servants, especially when compared to the higher educated residents, who usually have a higher level of income, and thus more space in their yards and a larger number of house helpers to help with the gardening.

Table 7-16: Residents' use of yards according to their level of educational.

Activity	Education background (%)			
	Less	Mid-dle	High	Total
Men sitting	20	45	35	100
Women sitting	22	48	30	100
Family sitting	19	40	41	100
Children playing	23	44	33	100
Hanging washing	27	40	33	100
Storage	27	43	30	100
Gardening	12	37	51	100
Car parking	13	26	61	100
Slaughtering sheep	67	22	11	100
Unused	19	45	36	100
Total	22	42	36	100

As regards car parking, earlier survey analyses showed that a lower level of education is generally associated with a lower income level and a lower area of house spaces, both indoors and outdoors. Since residents with a higher

educational level are mostly middle and high-income residents, they generally have more cars per household, which leads to more demand for parking spaces in these houses.

7-2-3-4 House Ownership and Length of Residence

The status of house ownership is found to have some effects on the residents' use of their yards. While renting residents use their yards more for activities such as family sitting, satellite dish installation and hanging washing, residents owning their residence use their yards more for almost all the remaining activities in Table 7-17. The reason behind this higher level of such activities, in the case of renting residents, is mainly related to the fact that they have fewer spaces than home owning residents. For example, satellite installation and hanging washing occur more in the yards of renting homes because these residents usually rent the ground floor only, and the roof will be used by the tenant of the first floor. Therefore, the ground floor tenants are only left with the yards for these activities.

Table 7-17: Residents' use of yards according to house ownership.

Activity	House ownership (%)	
	Own	Rent
Men sitting	10	10
Women sitting	3	2
Family sitting	11	14
Children playing	24	22
Hanging washing	7	8
Storage	11	7
Satellite placing	1	4
Gardening	7	5
Car parking	4	2
Pathway	6	5
Slaughtering sheep	1	0
Unused	15	21
Total	100	100

As regards family sitting, the small differences may be because renting families generally have less indoor space, compared to home owning families who use both house floors, thus renting families feel obliged to use outdoor spaces for family sitting.

However, concerning the other activities that are used more by owning than renting residents, the differences seem to be mainly because owning residents feel more settled than renting residents. This is clear when looking at activities such as storage, gardening, car parking and slaughtering sheep - activities that need some space, tools and structural arrangements. Renting residents prefer not to spend the required amount of money, time and effort on these arrangements, as they know that their occupation of that house is temporary.

This explains, also, why renting residents have more unused yards than home owning residents. Also, because the majority of renting families are of smaller household size and a younger age group, they probably have fewer social commitments and activities, thus their family gathering and sitting is slightly more frequent, and perhabes because of their less strict background they do not need to be segregated if receiving male or female guests separately.

As regards the effect of length of residence on yard use, it is found that length of residence has only a slight effect on some activities. Family sitting, for example, is found to be less frequent in families which have been resident for a long period, as illustrated by Table 7-18, while gardening is practised more by families of longer residence. These two results are related to the previous discussion, as most of the renting residents are only in residence for a short period, they show less use of yards for gardening and more use for family sitting.

However, unused yards are found more in families with a shorter period of residence. This is understandable, since these residents usually tend to use their houses more efficiently with time, thus using more yards, and outdoor spaces, for different activities and purposes with time.

The residents of the three cities showed very similar yard use per house (5.1, 5.4 and 4.8 residential activities per house for Riyadh, Tabuk and Haqil,

respectively). Table 7-19 details these uses as a percentage of the total uses that residents stated in each city separately.

Table 7-18: Residents' use of yards according to their length of residence.

Activity	House residence (%)			
	1-3y	4-6y	7-9y	>9y
Men sitting	11	12	9	13
Women sitting	3	4	4	3
Family sitting	14	12	11	9
Children playing	26	26	24	28
Hanging washing	8	8	7	7
Storage	8	10	11	9
Gardening	5	7	10	7
Car parking	2	3	5	3
Slaughtering sheep	1	0	2	1
Satellite placing	1	2	2	2
Unused	21	16	15	18
Total	100	100	100	100

Table 7-19: Residents' use of yards according to their city of residence.

Activity	Cities		
	Riyadh	Tabuk	Haqil
Men sitting	12	15	8
Women sitting	4.5	4	0
Family sitting	14	9	10
Children playing	26	29	30
Hanging washing	8	8	10
Storage	10	16	13
Gardening	6	5	6
Car parking	5	1	2
Slaughtering sheep	0.5	1	2
Satellite placing	2	2	0
Unused	12	10	19
Total	100	100	100

7-2-3-4 Size of Urban Settlement

In total, Riyadh's residents presented a much higher degree of yard use for sitting activities (men, women and family sitting) than those of Tabuk and Haqil (particularly Haqil), as Figure 7-18 illustrates. This is mainly related to the fact that Haqil is a coastal town, where almost all residents tend to spend many

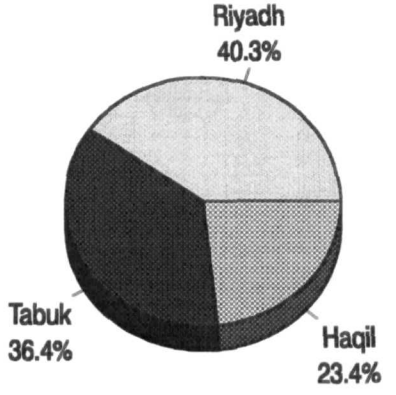

Figure 7-18: Proportion of residents' sitting activities as a percentage of the total yard activity of that city.

afternoons on the beaches, whether families, men or women. As Riyadh and Tabuk are inland cities, without significant natural sitting areas that would attract visits from residents, residents of these cities would generally have their sitting activities generally inside their houses, although there are many parks and farms where these cities' residents could go. Nevertheless, Riyadh and Tabuk residents spend more time on their sitting activities inside their houses, than Haqil residents. This also might explain the reason for the high percentage of unused yards in Haqil houses, compared to the other two cities.

Another factor affecting these activities' proportions is yard size; most Haqil residents have small lots and therefore have small yards, which would discourage the residents from using their yards for outdoor sitting activities, and maybe encourage them to partake in these activities outside the house, particularly on the beaches, especially on fine days, and there are many fine days in Haqil. The lot size is a less influential factor compared to the geographical factor considered above, as the residents of small lot sizes in Riyadh and Tabuk still show a higher percentage of residents sitting in their yards, when compared to Haqil residents, albeit with less differentiation.

Also, Tabuk and Haqil residents showed significantly more use of yards for storage than Riyadh residents. This is most probably related to the fact that most of the former cities residents are of nomadic background, and still hold to and practise some of their nomadic traditions, such as desert camping. These residents therefore need plenty of space in their yards for storing the equipment needed for camping, such as tents, wood for fire, cooking equipment, mats. Also, as household size in Tabuk and Haqil is greater than in Riyadh (see the earlier part of this chapter), then it is quite possible that these families would need more storage spaces in house yards than the spaces needed by smaller families.

Nevertheless, there are some residential activities that increase with increase in city size, such as satellite dish installation, parking cars and residents

sitting. The main two reasons behind this higher rate for the first two activities are lot area and income level, as large lot residents would have more yard space for placing satellite dishes and car parking places. Also, higher income people have the opportunity to own more cars and satellite dish systems per household. As most of the higher income and larger lot residents are in Riyadh, and few live in Tabuk, this might explain this differentiation in yard usage for these activities.

7-3 Residents' Use of Windows

7-3-1 Effect of Overlooking on Residents' Use of Their Windows

After analysing and discussing yard overlooking and its effects on residents' use of these yards, it is also important to investigate overlooking through house windows, and assess the effect of this overlooking on the use of room and windows. Also, it is important, to see the effect of weather on the opening and sealing of these windows, and to separate the weather factor from overlooking when analysing the frequency of opening these windows by residents.

As with the previous section, the residents' use of windows is investigated from three dimensions, the windows overlooking, the house's physical characteristics and the residents' characteristics. Three rooms in the house were chosen for this study, the sitting room (where the family receives its guests), the living room (where the family usually sit together), and the respondent's bedroom (where the respondent sleeps). This would result in having more precise answers than if the respondent was asked about his father or brother's bedroom).

7-3-1-1 Degree of Overlooking into Rooms Through Windows

Residents were asked if their bedroom, living room or sitting room were overlooked by neighbours, and if the windows and any curtains were left open. The answers produced different results, in accordance with room use, surrounding buildings, the storey the room was in and the person who was answering the questions.

It is found that there is a significant difference in the overlooking between the three rooms. As Figure 7-19 illustrates, the difference between 'overlooked' and 'not overlooked' windows in the sitting and living rooms is not large, but it is quite significant in the bedroom. There are several reasons for this. The main reason is that the bedroom is usually located on the upper floor, thus making it more exposed to overlooking from adjoining dwellings, especially when compared to the sitting and living rooms which are usually located on the ground floor, making them more protected by the fence wall. The second reason is that overlooking into the bedroom is usually perceived with more sensitivity, as it is the most private place for the respondent.

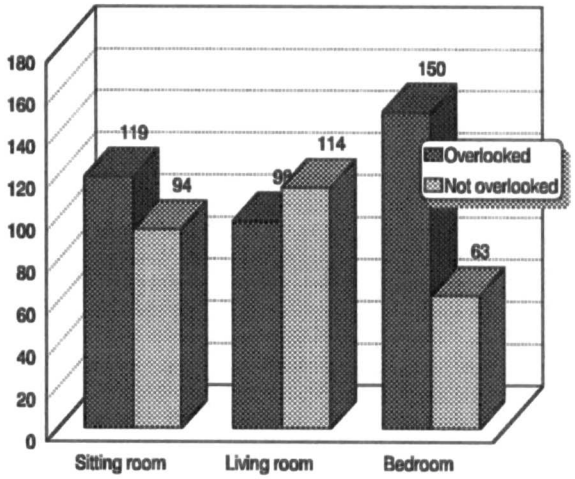

Figure 7-19: The number of residents believing their windows were overlooked by neighbours (sitting room/ living room/bedroom).

The majority of residents claim that their sitting rooms are overlooked, while the opposite response was given in the case of the living room. This is due to the most common locations of these rooms, the sitting room is usually located in the front of the house and adjacent to the main yard, the living room is

generally located in the middle or back of the house and adjacent to one of the side yards, or in some cases to the backyard.

As the main yard is usually the largest one in terms of width, this leads to the main yard and the sitting room windows being more exposed to neighbours overlooking, when compared to narrower yards, where the fence wall can give much more protection from overlooking for the windows on the ground floor, see Figure 7-20.

In terms of surrounding buildings, it is found that overlooking of windows is also affected by these buildings. For example, houses adjoining villas or multi-storey buildings show a higher percentage of overlooked windows than those adjoining single storey buildings or vacant land, especially in the case of bedroom windows, see Appendix-Table 7-39 to 7-42.

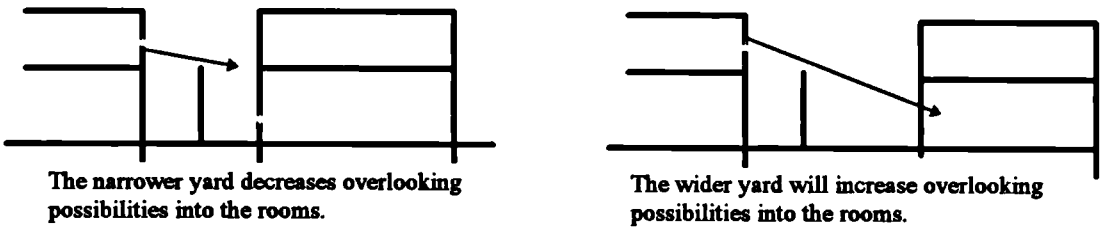

Figure 7-20: The effect of yard width on the overlooking of rooms located on the ground floor through windows.

7-3-1-2 Frequency of Opening Windows

The residents showed they open their windows with different frequencies depending on the function of the room, as can be seen in Figure 7-21. While bedroom windows are opened most frequently, the sitting room ones are opened much less. Whereas more than half the residents claimed they open their bedroom windows every day, only about 40% and 10% stated that they opened their living and sitting rooms windows every day, respectively.

There is more than one reason behind this difference. As regards the sitting room, the frequency of opening windows in this room depends on whether the room is in use or not, as it is usually used only when receiving guests. Concerning the bedroom, there is a very important function for this room, which means that windows will be opened more frequently. This is because residents tend to leave their bedroom windows open when they are not in the room, so they would be less worried about overlooking in this case.

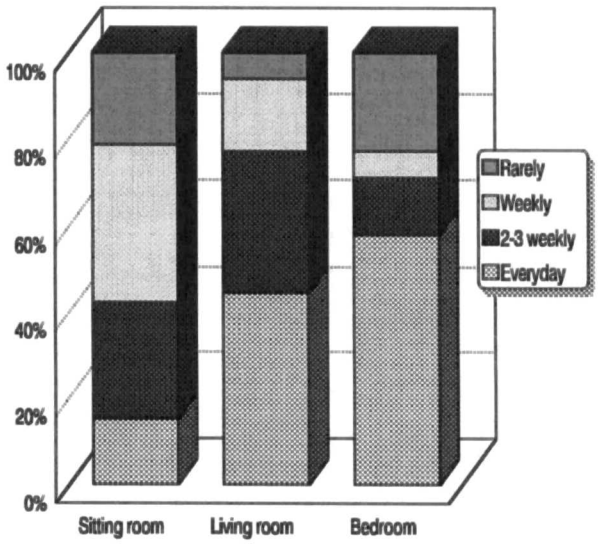

Figure 7-21: Percentage of opening windows in the three rooms.

However, this point is clearer when comparing the residents' response when asked how often they would open the windows in these three rooms if they were not overlooked. Although, the vast majority of them stated that they would open these windows more often if there was no overlooking, 16 residents out of the 213 stated that they would not change the frequency of opening the sitting room and bedroom windows, even if they were not overlooked, see Appendix-Table 7-43 to 7-45.

On the other hand, not a single resident said such a thing in the case of the living room, where all residents, without exception, stated that they would open the windows in this room more often if there was no overlooking, which emphasises the importance of overlooking for this room in residents' minds. As this room is in almost continuous use, the chances of opening the windows while it is unattended are very rare, compared to the case of the bedroom and sitting

room, where residents appeared to open the windows mostly while they were not in the room, or when it was not in use.

7-3-1-3 Effect of Climate on the Frequency of Opening Windows

In order to see if weather conditions have any effect on the frequency of opening windows in the three rooms, the residents were asked whether would they open their windows when the weather was fine. Almost 95% of the respondents indicated that they would open their windows, and there was no significant difference between the percentages for the three rooms, see Appendix-Tables 7-46 to 7-48.

Furthermore, those who said that they would open their windows, were asked whether they would open their windows as often as before (as discussed in the former section and illustrated by Figure 7-20), or whether they would consider changing the frequency. By far the most common answer (more than 90% of the residents) said that they would open the windows more often than they had stated before for all the three rooms, but the sitting room had the lowest percentage, as about 6% of the residents stated that they would open the windows in this room only when it was in use.

However, the residents' answers for both questions eradicate any reasonable doubts concerning the reasons for not opening windows more frequently, and prove that it is related to the overlooking problems rather than to climate, particularly when comparing frequency of window opening in the three rooms where the windows are overlooked and when they are not overlooked, as can be seen in Figure 7-22.

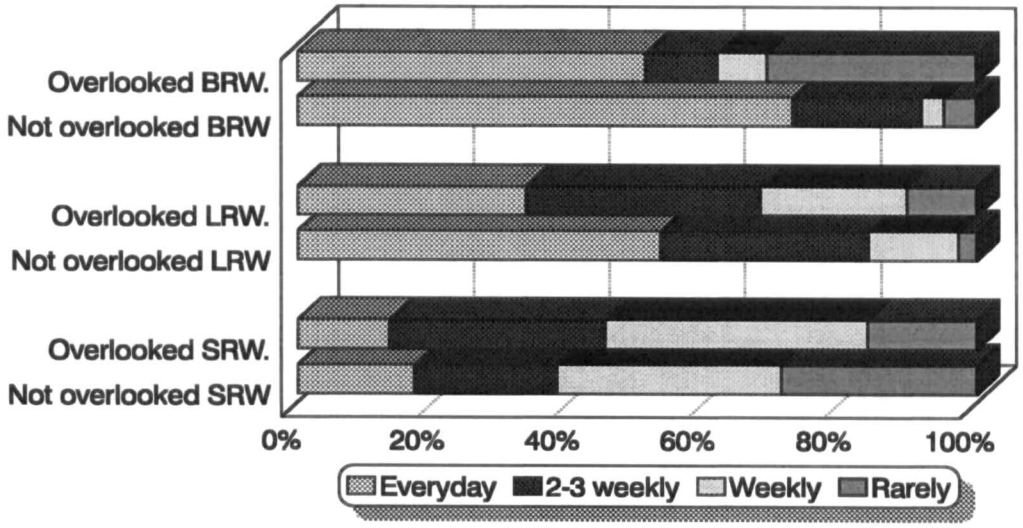

Figure 7-22: Percentage of residents opening their windows when these windows are overlooked and not overlooked.

BRW: bedroom windows
LRW: living room windows
SRW: sitting room windows

The results of this comparison are that the number of residents opening the 'not overlooked' windows every day is much higher than the number opening the 'overlooked' windows, although with different proportions according to room use - the bedroom and living room showed a much higher degree of differentiation than the sitting room. This comparison proves that the frequency of opening windows is affected by neighbours overlooking these windows.

7-3-2 Effects of the House's Physical Characteristics on the Use of Windows

7-3-2-1 Reasons for Windows being Overlooked

Most of the villa windows in the surveyed areas are the common type, opening outwards towards the yards and the neighbouring buildings or lots. They are mainly made of aluminium frames around glass plates of different colours, and sometimes patterned and often reflected plain glass. From the inside, there are always curtains behind these windows, in order to block the sunlight when the

resident needs to, and to give visual protection from overlooking when the resident leaves the windows open for ventilation.

From the outside, the windows take many shapes, but are mostly rectangular. A small percentage of these windows are covered with aluminium or steel mesh, which is used mainly to improve their appearance rather than for privacy protection, as they do not give good visual protection, particularly at night-time when the lights are on in the room, see Figure 7-23.

As in the case of yard overlooking, the main reason for windows being overlooked is also related strongly to the planning regulations, and the house form they imposed. Since almost all rooms have to be oriented outwards for natural light and ventilation, window overlooking between neighbouring villas is very common. The situation of window overlooking for first floor windows is even worse than yard overlooking or windows on the ground floor, as first floor windows are easily observed visually from surrounding buildings, see Appendix-Table 7-49 to 7-52.

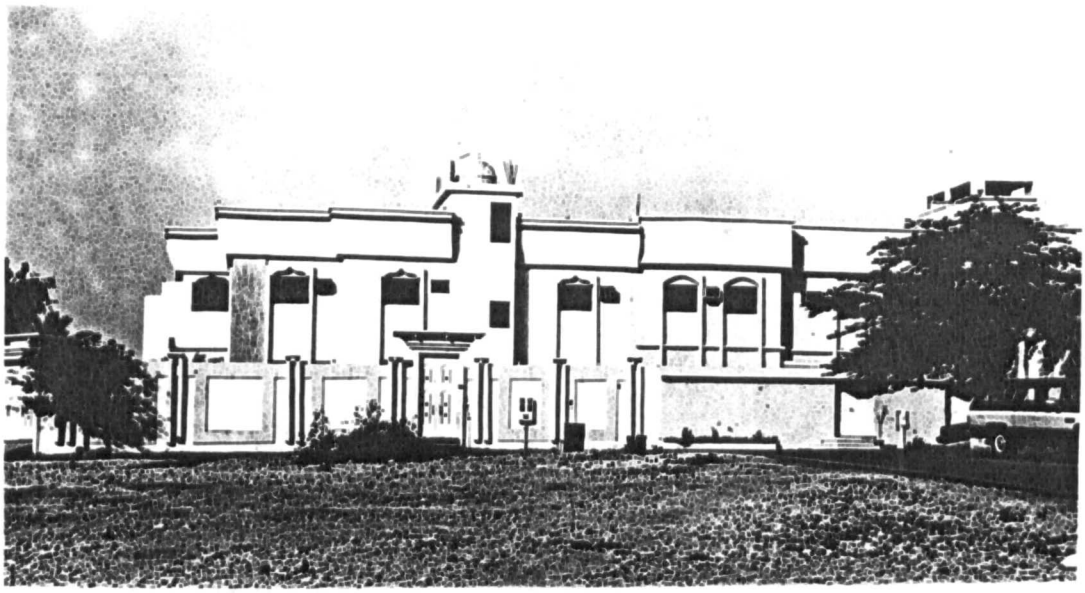

Figure 7-23: A photo of some villas in al-Erija (Riyadh) which shows some examples of villa windows.

The overlooking source and conditions for yards and windows are very similar. The percentage of overlooked windows is found to be much higher in villas surrounded by other villas and medium and high-rise buildings, while it was much less in cases where the villa is surrounded by vacant land or single storey buildings. The only exception is that the fence wall does not give any visual protection to the first floor windows, as it sometimes does for the yards. On the other hand, this fence wall gives some protection from overlooking to the ground floor windows, almost equal to the protection it gives to the yard in that direction.

7-3-2-2 House Size

The house or lot size is found to have some effects on the degree of window overlooking. It is found that in the case of the ground floor rooms (living and sitting rooms), window overlooking decreases with increase in lot area. In the case of first floor windows (bedrooms), the overlooking increases with the increase in lot area, see Appendix-Tables 7-53 to 7-55.

The main reason behind the first relation is related to the high level of the bedroom (generally located on the first floor of the villa), which makes it much more exposed to overlooking from adjoining buildings, no matter what the distance is between the villa and its surrounding buildings (as the chances of the overlooking neighbour using binoculars are not excluded by residents). The fence wall gives more protection from this overlooking, in the case of ground floor windows, and this protection will increase with decrease in yard width, particularly if it has been proved before that yard size or width increases with increase in lot area, see Figure 7-20.

As regards the second relation, the reason behind the increase in first floor room overlooking with the increase in lot area is mostly due to the fact that the increase in distance between the villa and its surrounding buildings will increase

the number of windows or sources of overlooking onto those first floor windows, see Figure 7-24. However, this differentiation in lot area has only a small effect on the degree of overlooking onto windows in total, as even with the smaller lot sizes and with the smallest possible width of yard surrounded by the maximum possible fence height, overlooking between first floor windows is still likely.

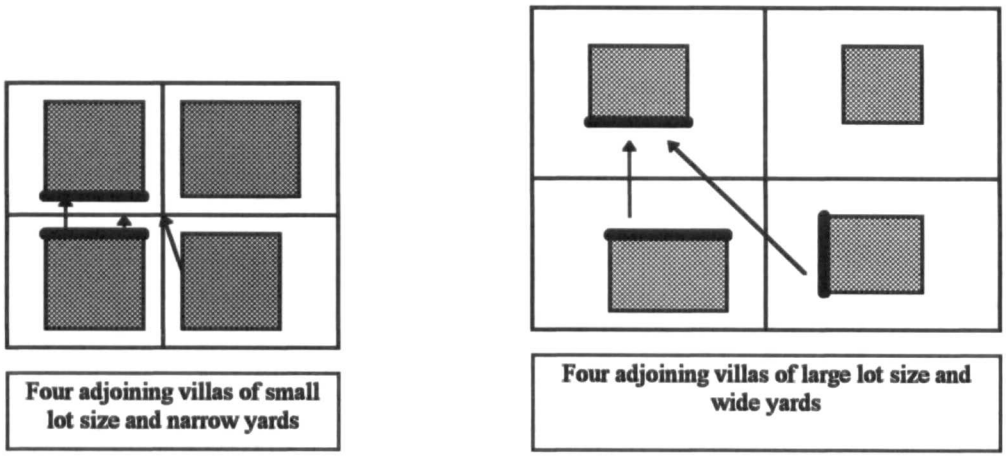

Figure 7-24: In smaller lots with narrow yards, as on the left side, the chances of overlooking between first floor windows are less than in larger lots with wide yards, as on the right side.

7-3-2-4 Extra Fences

The survey findings show that houses with extra vertical fences have a lower percentage of overlooked windows, than houses without extra fences. For example, when looking at the residents who do not have extra fences in their houses, only 24% of them claimed that their bedroom windows were not overlooked, while 60% of the residents of houses with extra vertical fences stated that these windows were not overlooked, see Table 7-20.

Further investigation of Table 7-20 illustrates that there is a strong tendency for having a higher percentage of overlooked windows, when

considering houses that do not have extra vertical fences, see the bottom row of the table. Also, it shows that in the case of houses with extra vertical fences, the proportion of 'not overlooked' windows is higher than the 'overlooked' category.

Table 7-20: The percentage of residents having overlooked/not overlooked windows according to the extra fence types and to room use.

Extra Fences	Bedroom windows		Living room windows		Sitting room windows	
	Not overlooked	Over-looked	Not overlooked	Over-looked	Not overlooked	Over-looked
Vertical, 1-2m	22	15	25	16	20	15
Vertical, 2.01-3m	22	15	21	13	16	19
Vertical, >3m	14	9	13	5	14	6
Planning to add	8	6	6	6	10	4
Horizontal	8	7	8	8	6	10
Horizontal & vertical	2	4	3	4	3	3
Do not have an extra fence	24	44	24	48	31	43
Total	100%	100%	100%	100%	100%	100%

Also a similar proportion is found in the case of the living room, but the sitting room shows a less clear result. The reason is because a lower proportion of extra fences are located in the front yard. Also, since the sitting room is mainly used by male members and their male guests, there is less need to protect it from overlooking, and even if there was overlooking onto this room it would be perceived as much less important than if it was the living room or the bedroom.

As regards the lesser overlooking of the bedroom and living room, this is because of the extra vertical fence, as can be seen from the drawing in Figure 7-25. The extra vertical fence gives a substantial protection to room windows, if it is located in the right place, or at least it will reduce the source or the degree of overlooking onto the windows which are not completely protected by that extra fence.

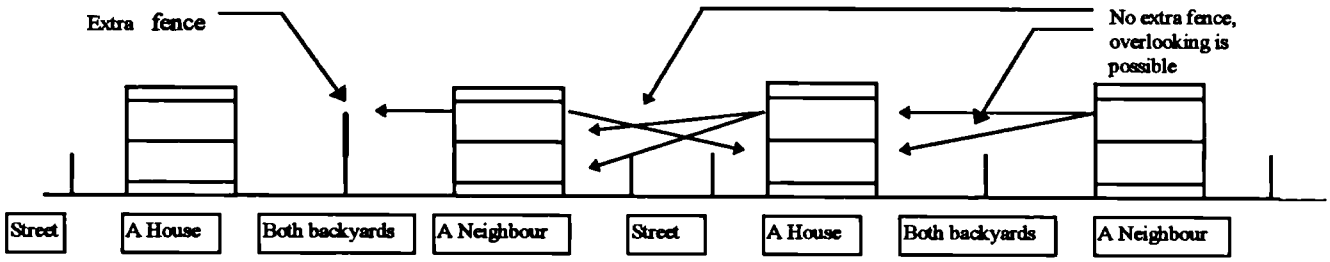

Figure 7-25: The overlooking protection the extra vertical fence can give to first and ground floor windows, left side, and the exposure of first and ground floor windows to overlooking without an extra vertical fence.

Moreover, the degree of overlooking protection increases with the increase in the height of the extra vertical fence, as the higher the extra fence is the greater the number of neighbouring windows it will block. This is important particularly in protecting the windows of first floor rooms from neighbours overlooking, which need an extra vertical fence of three metres in height or higher, in order to be able to block the view of the overlooking neighbour, when that neighbour looks from his first floor window.

Also, the degree of overlooking protection of the extra vertical fence is much more in the case of ground floor windows, than it is in the case of first floor windows, as some of the extra vertical fences are not of sufficient height to block the neighbours' observation of the first floor windows. This is because the residents' intention in building this low vertical extra fence is mainly to protect the yards, and perhaps some of the ground floor windows, from overlooking, rather than to protect the first floor windows.

As regards the horizontal fence cover, it can only protect the windows of the rooms that happen to be below it, and they are generally windows of only one to two rooms on the ground floor. However, the residents main purpose in building this type of fence cover is to protect the yard underneath it from overlooking, as well as to give this yard some protection from sunlight and heat, rather than protecting the room windows that happen to be under this cover. In

any event, this type of fence has no effect whatsoever in reducing the overlooking of the first floor windows, and this is one of the main disadvantages of the horizontal fence cover, compared to the vertical one.

7-3-3 Effects of the Residents' Characteristics on the Use of Windows

7-3-3-1 Household Size

There was no significant correlation found between household size and the frequency of window opening or even the overlooking of these windows, see Appendix-Table 7-56 to 7-58. The reason is perhaps that residents need to open their bedroom or living room windows with the same frequency, whether there are many or few people living in the house or staying in that room.

On the other hand, window overlooking can only be affected by the household size, if the frequency of opening these rooms windows is going to increase, due to the increase in the number of people living in that house, which is not likely. As household size is found to have no significant effects on the frequency of window opening, then it is possible to claim that the effect of the household size on window overlooking is insignificant.

7-3-3-2 Income

As regards the effect of the residents' income level on the frequency of window opening, the higher income residents were found to open their bedroom and living room windows more often than the middle and lower income residents do. Figure 7-26 illustrates that while 80% of the high-income residents stated that they open their bedroom windows on daily basis, only 55% and 57% of the middle and low-income residents stated so. However, this difference - and its meaning - is unclear in the case of the living room or the setting room windows, which means that there is no specific correlation between the residents' level

of income and the frequency of opening their living room and sitting room windows. In relation to the bedroom, no clear explanation was found to explain why the high-income residents open this room windows more than the other income groups. However, this differentiation might be related to behaviour or psychological reasons, but it has not been possible to prove or disprove these points, as it was not the intention of this study.

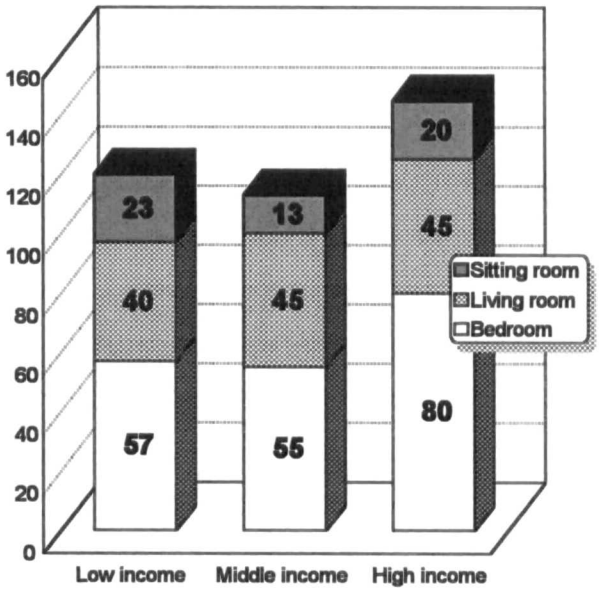

Figure 7-26: Percentage of residents opening their room windows on 'everyday' basis, according to their level of income and room use.

7-3-3-3 Education

It is clear from Table 7-21 that there is a notable relation between the residents' educational level and the frequency of opening their windows. When exploring the percentage of residents opening their bedroom and living room windows every day, it is found that there is a significant increase in the percentage of residents opening these windows with the increase in their level of education. The same conclusion can be drawn for the proportion of residents opening these room windows on a 'rarely' basis, where the percentage of higher educated residents is lower than for less educated residents.

The reason behind this difference in frequency might be related to the higher level of awareness, regarding the importance of natural ventilation and sunlight entering rooms, among the higher educated residents.

Table 7-21: Frequency percentage of residents opening their room windows according to their level of education and room use.

Window opening frequency	Level of education								
	Bedroom			Living room			Sitting room		
	Low	Middle	High	Low	Middle	High	Low	Middle	High
Everyday	44	52	73	35	44	51	17	12	17
2-3 a week	19	10	13	43	36	22	21	29	29
Weekly	11	8	1	15	17	18	43	39	29
Rarely	26	30	13	7	3	9	19	20	25
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

Also, another possible explanation can be related to the level of income. As was discovered in the former section, the higher income residents were found to open the bedroom windows more than the lower income ones, and as a higher level of education is mostly associated with a higher income level, then it is possible to confirm that these two characteristics of the residents (high income and education levels) could lead to greater use of and more opening of windows.

Concerning the sitting room, there was no significant or notable relation found between the residents' frequency of opening these windows and their educational level, since this room is usually used only when receiving guests, as some residents indicated.

7-3-3-4 Length of Residence and House Ownership

It was not possible to draw a link between the frequency of residents opening windows on the one hand, and house ownership or length of residence on the other, as there was no significant correlation between these two factors.

However, the only notable difference that can be traced is in the case of bedroom windows, where 73% of the renting residents stated that they opened this room window on an everyday basis, while 55% of the owning residents did, see Appendix-Tables 7-59 to 7-61.

The reason might be linked to the fact that many of the renting residents are renting only the ground floor of a villa, thus, their bedroom will be located on the ground floor, where in the case of owning residents, the bedrooms are usually located on the first floor, making them more exposed to neighbours overlooking when compared to the renting residents' bedrooms. This, of course, would encourage these renting residents to open their bedroom windows more frequently, and at the same time deter the owning residents from opening these windows frequently.

In any case, residents tend to leave their bedroom windows open while they are not in the room, but surely the frequency of opening these windows will be greater in cases where there is no overlooking onto these windows, as residents would feel free to leave these windows open while they are also in the room.

7-3-3-5 Size of Urban Settlement

As far as urban settlement size is concerned, Haqil showed the lowest percentage of overlooked windows for all three rooms, with Riyadh in second place and Tabuk in third. The reason for this differentiation in overlooking onto windows is related to the overall degree of overlooking in the surveyed areas in these cities.

As Haqil has the highest percentage of single-storey neighbourhoods and the highest rate of neighbouring vacant land, this might explain the high degree of 'not overlooked' windows in the surveyed area. The same thing can be said about

Riyadh when compared to Tabuk, which explains why the percentage of 'not overlooked' windows was higher in the latter city than it was in the former, see Appendix-Tables 7-62 to 7-64.

As regards the frequency of opening these windows, an interesting result is found when comparing Haqil and Riyadh residents in Table 7-22. While Riyadh residents tend to open their bedroom windows more frequently than the residents of Haqil, the latter indicate a higher frequency in opening their living room windows than the residents of the former city.

Table 7-22: Frequency percentage of residents opening their windows according to city of residence and room use.

Opening windows	City								
	Bedroom			Living room			Sitting room		
	Riyadh	Tabuk	Haqil	Riyadh	Tabuk	Haqil	Riyadh	Tabuk	Haqil
Everyday	69	41	47	48	34	50	14	12	27
2-3 a week	15	15	3	29	43	30	25	30	30
Weekly	7	5	3	16	20	13	32	40	43
Rarely	9	39	47	7	3	7	29	18	0
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

The reason for Haqil having the highest frequency rate in the case of opening living room windows is because its houses showed the lowest percentage of window overlooking, particularly for living and sitting rooms. On the other hand, the reason behind Riyadh's residents opening their bedroom windows more frequently can be related to their higher level of income and education, as these groups of residents tend to open their windows more frequently than the residents of lower income and educational levels, as was established in the earlier sections of this chapter.

Although Tabuk has a cooler and pleasanter climate than Riyadh, Tabuk residents showed the lowest frequency among the three cities for opening the bedroom and living room windows. The reason behind this is related to the fact that these residents' windows have the highest rate of overlooking among the three cities' residents, which in turn would limit and discourage residents from opening these overlooked windows.

7-4 Residents' Use of House Roofs

In order to complete the whole picture of overlooking between villas, the house roof will be investigated in this section to understand its relevance to overlooking and how the residents react to this overlooking.

About two-thirds of the surveyed houses do not have an overlooked roof, while the remaining third consists of houses with overlooked roofs, see Appendix-Table 7-65. There are two factors determining the overlooking of these roofs; the height of the roof parapet and the height of surrounding buildings. It is mainly the height of the roof parapet that determines roof overlooking, as all surrounding buildings are usually of a similar height, except for some cases where the surveyed houses are adjoined by higher buildings.

Almost one in every ten houses has a parapet height exceeding two metres, while the remaining nine are of one to two metres in height. This parapet height plays a major role in determining roof overlooking; where almost all the roofs with a parapet height of more than two metres are not overlooked, more than two-thirds of roofs with 1-2 metre high parapets are overlooked, see Appendix-Table 7-66.

Regarding residents' use of their roof, about half the residents stated that their roof is not used, even those whose roofs are not overlooked. However, the 'not overlooked' roofs showed much more frequent use than the 'overlooked' ones, see Table 7-23, which means even when the residents are on the roof, their activities are still affected significantly by neighbours overlooking, particularly those activities involving female members. The main activities that take place on the roof are hanging washing, satellite dish installation, family sitting and storage. Also, fewer residents stated that they use the roof for keeping birds, women sitting and children playing if the roof is overlooked.

Table 7-23: The residents' use of the roof according to its overlooking situation

Activity	Overlooked	
	Yes	No
Men sitting	1	1
Women sitting	0	7
Family sitting	2	26
Children playing	0	7
Storage	8	21
Hanging washing	4	28
Satellite placing	15	28
Birds keeping	4	13
Unused	48	52
Total	34	131

The overlooking situation of the roof and its use by residents is affected by several factors. First of all, the surrounding buildings. It is found that the largest source of overlooking is where the house is adjoined by a higher building, usually a medium or high-rise commercial or residential building. As these buildings are much higher than the villa, any person looking from the upper floors of these building can very easily overlook the neighbouring villas' roofs, and any persons who happens to be on them. However, as explained in the section on "Reasons for yard overlooking" in this chapter, these high-rise buildings are found only in the King Fahad area, while medium-rise buildings are found on the main roads of most areas.

The second largest factor effecting overlooking is the height of the parapet. If its height is less than the average human height (about 1.7 metres), then the roof is most likely to be overlooked, especially if the parapet height of the neighbouring villas is the same, which makes the resident exposed to their neighbours' observation if both are standing on their roofs.

The third factor is the availability of other protected outdoor spaces in the house. It is found that the residents of 'overlooked' and narrow yards use the roof more frequently than those with 'not overlooked' and wide yards. For instance, Table 7-24 shows the roof use of houses with and without extra fences, where the number of used roofs is much higher in the case of houses without extra fences than it is for houses with these fences. This indicates that when residents have a suitable yard which is not overlooked, they tend to use their roof less.

As far as cities are concerned, it is clear from Table 7-25 that Tabuk residents showed the highest use of roofs among the three cities, and Riyadh residents came second, while the residents of Haqil showed the lowest rate of roof use.

Table 7-24: The number of residents using their house roof according to the presence of an extra fence in the yards.

Extra fence	Roof use		
	Used	Unused	Total
With	72	40	112
Without	57	44	101
Total	129	84	213

Table 7-25: The number of residents' activities taking place on the roof according to the city of residence.

Activity	City		
	Riyadh	Tabuk	Haqil
Men sitting	2	0	0
Women sitting	4	3	0
Family sitting	0	18	1
Children playing	5	10	1
Storage	12	14	3
Hanging washing	17	12	3
Satellite placing	33	10	0
Birds keeping	9	5	3
Unused	61	17	23
Total activities	82	72	11
Average no. of activity per house	0.68	1.20	0.37

There is one main factor responsible for this outcome, the roof parapet height. Although, other factors might contribute to roof overlooking, such as the city's climate, percentage of overlooked yards, lot and yard sizes and the height of the surrounding buildings, they remain secondary factors when compared to the effect of parapet height on the overlooking situation of the roof.

As Figure 7-27 explains, many of Tabuk's houses have of a parapet height of more than 1.7 metres, while the parapets on most Haqil's of houses are of less than 1.7 metres. This of course has a very significant effect on the overlooking situation of these houses. Whereas Tabuk residents would be protected more from overlooking and thus would be encouraged to use their roof for their residential activities, Haqil residents would be very exposed to their neighbour's observation when both are on their roofs, thus limiting very much the use of this space, particularly for female activities.

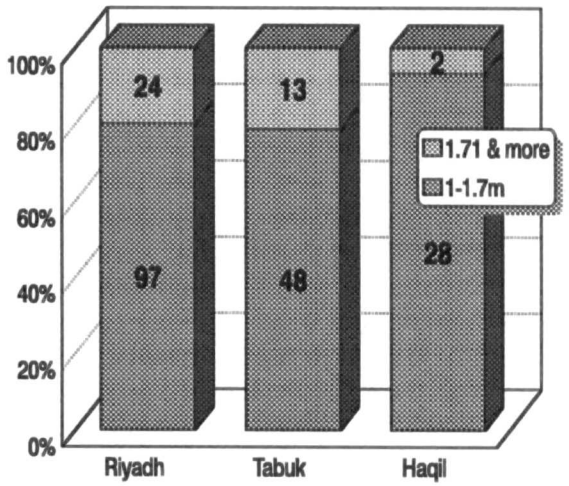

Figure 7-27: The percentage of roof parapet heights, according to city.

7-5 Summary of Findings

- Only 18 houses out of the 213 surveyed have no overlooking onto any of their yards or only minor overlooking. Also, about 9 out of every 10 houses are found to have one or more overlooked yard. The main yard (the front yard) is found to be the most overlooked one.

- The most frequent activities that take place in the yards are, starting with the most common, 'children playing', 'family sitting', 'storage', 'men sitting' and 'hanging washing'. The less frequent activities are the 'use of pathway', 'car

parking', 'gardening' and 'women sitting', and the least frequent activities are 'satellite dish installation', 'slaughtering sheep', 'men's' sports' and 'sleeping at night-time'.

- The front yard is found to be the most used one (44% of the total number of activities in yards), followed closely by Y2 (the larger side yard, 35%), while Y3 (the smaller side yard) and the backyard were the least used ones, particularly the latter (14% and 7%, respectively).

- The main reason for yard overlooking is related to the planning regulations and the out-looking house form adopted by them. These regulations resulted in building the house with setback from all sides, which made most neighbouring villas overlook each others' yards and windows.

- It is found that the majority of overlooking is done by villas. A little overlooking is done by medium or high-rise buildings which were allowed to be close to these villas, and in many cases adjacent to them, due to the land-use subdivision policy followed in the surveyed suburbs. Although these latter buildings were small in terms of quantity and area, their overlooking effect on neighbouring villas was very damaging, and far exceeded their numbers or areas. Almost all the residents of the villas adjoining these buildings stated that their yards were 'always' or 'often' overlooked by these buildings' occupiers. By comparison, however, these residents mostly stated that their yards were 'rarely' overlooked by neighbouring villas.

- Investigating the results of overlooking on the degree of residents' use of their yards, show that, in general, the greater the overlooking the less residents use their yards. This relation is even stronger in the case of activities involving female members of the family.

- It is found that almost all overlooking takes place from the first floor windows of neighbouring villas.

- In general, the front yard is usually the largest one in the house, followed closely by Y2 (the larger side yard), while Y3 and the backyard are usually the smallest ones, particularly the backyard, where almost all the surveyed houses applied only the minimum setback requirements for that yard (2 metres in width).

- There is a very strong relation between residents' use of yards and the yard size, or width. It is found that there is an increase in the number of activities with the increase in yard size. Small yards, particularly of 2 metres in width, are rarely used by residents, 285 out of 331 yards of 2 metres in width are stated to be of no great use to their residents.

- The yards' location in terms of sun direction has an insignificant correlation with the residents' use of the yards. However, it is found that there is a significant correlation between the location of yards, in terms of street and house entrance locations, and the degree of residents' use of these yards.

- The small size of lots has a significant effect on the residents' abilities to provide reasonable width and space for their house yards, that are sufficient for outdoor activities such as sitting.

- Only 21 houses out of the 213 (excluding al-Erija) were found to give the back yard more width than that imposed by the setback requirements, which indicates the insignificance of the backyard for residents in terms of space and use.

- The height of the house fence is found to have no significant effect on the degree of overlooking. This is due to the fact that almost all overlooking takes place from the neighbours' first floor windows, which are not affected by the height of the fence, as the level of these windows is usually higher than the fence

height. On the other hand, extra fences are found to have a very significant effect in protecting yards from overlooking. Depending on the height and location of this extra fence, residents manage to get very strong protection from overlooking, which has led to a significant increase in the number of family activities, and a slight increase in other activities in these yards.

- Only 80 houses out of the 213 were found not to have extra fences, while the rest of the houses have extra fences of various types and heights. The most common type is the extra vertical fence, which is present in approximately 100 houses, while the other type is the extra horizontal fence which is present in 25 houses, although, the presence of both these types varies from one suburb to another. King Fahad suburb and al-Erija are found to have the highest percentage of extra fences, and al-Nahdha and al-Shifa showed the lowest percentage.

- About 8 out of every 10 residents stated that there were one or two yards in their houses that were of no great use. Around 60% of these residents blamed the narrowness of these yards, and 30% of them blamed neighbours overlooking.

- 99 residents out of 190 indicated the backyard as the least useful yard and as a waste of space. Also, about half of al-Erija residents considered their main yard as not a useful space.

- Only 25 residents out of the 213 claimed that none of their house yards were useful, 21 of these residents were in small lots (less than 450 square metres), and most of the yards were of 2 metres in width, except for the front yards which were mainly between 3-4 metres.

- The vast majority of residents pointed out the main yard as the most important one, followed by the larger side yard (Y2). The main reason behind this was, firstly, "because of its large size", and secondly, "because of overlooking protection".

- Some activities are found to be practised more by higher income residents than lower income ones. These include 'women sitting', 'family sitting', 'car parking' and 'gardening', while the lower income residents practised activities like 'children playing' and 'storage' more frequently.

- The residents owning their residence are found to use their yards more than the renting residents, except for family sitting, satellite dish installation and hanging washing, which were more frequent among the renting residents.

- Riyadh residents showed a slightly higher percentage of yard usage compared to Tabuk and Haqil residents, particularly the latter.

- The vast majority of residents indicated that their bedroom windows were overlooked by neighbours, and that neighbours would be able to see the inside of their rooms if these windows were left open. The difference of overlooking degree in the case of the sitting and living room windows was very minor, due to their location on the ground floor of the villa, which is less exposed to overlooking, compared to the location of bedroom windows on the first floor of these houses.

- The bedroom windows were found to be the most opened ones, followed closely by the living room windows, while the sitting room ones were opened least often due to the infrequent use of this room compared to the other rooms.

- Almost all the residents of overlooked windows stated that they would open these windows more often if they were not overlooked by neighbours. However, if the weather was fine and there was no overlooking, 95% of the residents indicated that they would leave these windows open, regardless of the room use.

- It is found that houses with extra fences have a much higher percentage of 'not overlooked' windows, which proves that extra fences provide protection from overlooking for some of the house windows as well as for the yards.

- Regarding house roofs, it is found that two-thirds of these roofs are not exposed to neighbours overlooking, and that the height of the roof parapet wall played a major role in protecting the roof from overlooking.

- Half the residents stated that they did not use their roofs, while, the residents of 'not overlooked' roofs showed more usage than the residents of 'overlooked' roofs, especially for activities involving female members of the family.

- Tabuk residents showed the highest percentage of roof use, while Riyadh and Haqil residents showed much less use of their roofs, particularly the latter. This was found to be related to the presence of higher parapet walls in Tabuk houses than in the other two cities.

Chapter 7 Notes

[1]. Since 1990 satellite dishes have become very popular in Saudi Arabia, and almost half the households in the country own at least one system. Also, for technical reasons, the dish of the satellite system used in Saudi Arabia are of very large size. They measure something between 2.2 to 5 metres in diameter. Therefore, a large open space of about 5 X 5 metres is needed for them in order to operate properly, especially if they are a motorised. Thus, residents tend to place them on the roof or in the front yard, whichever they prefer and have.

[2]. There are special places where one can take a live sheep to get it slaughtered and prepared for cooking and very few residents prefer to slaughter their sheep themselves, and in order to do so perhaps the only handy space for them is the back or side yard of their dwelling. This is particularly the case in the rural and smaller urban centres, or families of a strong rural or nomadic background.

8-

RESIDENTS' PERCEPTION OF PRIVACY

8-1 Introduction

This chapter will investigate the variables involved in defining privacy in the residents' opinions, through three aspects. Firstly, the variables involved in privacy perception will be discussed and analysed. Secondly, the importance of privacy violation will be defined and measured through the residents' behaviour and the physical adjustments the residents have made to their houses. Thirdly, the residents' attitude and reaction towards a neighbour overlooking or privacy violation, will be investigated and analysed, in order to identify the variables encompassed in defining this reaction.

8-2 Variables Affecting the Perception of Privacy

There are three factors affecting the residents' perception of privacy in overlooking between houses. As discussed and analysed in chapter two, these factors are the spatial, behavioural and the residents' personal character dimensions, which are analysed in this section, through the residents' responses.

8-2-1 Spatial Dimension

The two spaces involved in the residents' perception of privacy were the overlooked space of the house, and the space where overlooking was taking place from, which is going to be called here the "overlooker place" for the sake of simplicity. The most common examples of the first space are the house yards, windows or roofs of the respondents' house. Examples of the second space are the neighbour's first floor windows, in the case of a villa, and the upper floor

windows, in the case of a medium and high-rise building, which are rare cases in this survey.

8-2-1-1 The Place of the Overlooker

Since the most common place of overlooking was found to be the first floor windows of the neighbouring villa (see Figure 7-4), it was assumed that this was the location of the "overlooker". There are a few cases where the place of the overlooker was from behind the windows of the upper floors of medium and high-rise buildings (3.6% of the total overlooking violations).

However, the residents' responses showed that overlooking from middle and high-rise buildings was considered a stronger violation of privacy, than overlooking from a neighbouring villa, whether it was from the first floor windows or the rooftop (for more detail, refer to section 7-2-2-2).

8-2-1-2 The Overlooked Place.

The most overlooked spaces in the house were the yards, rooms windows and rooftops. The degree of overlooking or privacy violation perceived by the residents was found to be significantly affected by the types of these overlooked spaces.

For example, when comparing between outdoor and indoor places in the house, the residents viewed the privacy of indoor spaces with a much higher degree of importance than that of outdoor ones. This was related to the socio-cultural values of the Saudi Arabians, who regard the house's interior as a sacred place, and the yards surrounding the house as a semi-private or semi-sacred spaces, where privacy violation is very undesirable, but to a lesser degree than the inside of the house.

However, even among the indoor spaces, the degree of privacy importance varied according to the type or use of the indoor spaces. For instance, only 15 of the total 213 residents viewed overlooking onto yards as stronger than looking into the sitting room, no residents regarded overlooking onto yards as stronger than looking into the living room or bedroom, see Figures 8-1 and 8-2.

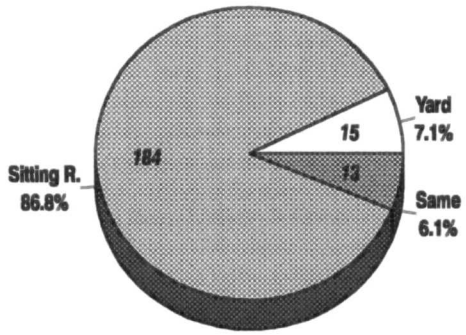

Figure 8-1: Residents stating which overlooking is stronger, into the YARD or into the SITTING ROOM (in percentages).

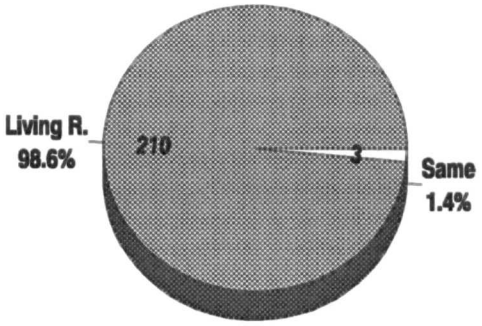

Figure 8-2: Residents stating which overlooking is stronger, into the YARD or into the LIVING ROOM (in percentages).

As far as the rooms were concerned, it appeared that the highest degree of privacy importance was attached to the bedrooms, followed by the living room, while the least private was the sitting room, see Figures 8-3 and 8-4. The reason for this was related to a series of privacy hierarchies inside the house. If a ranking chart is drawn for this hierarchy, the yards are going to be at the least private end and the bedroom will be at the most private end. Between these two ends, the other spaces of the house are located according to their degree of privacy.

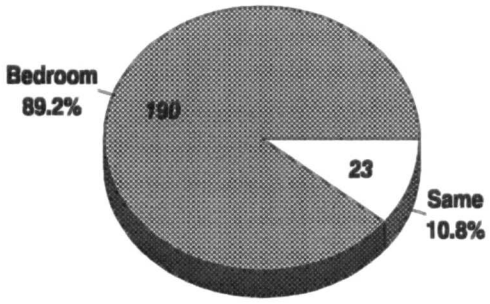

Figure 8-3: Percentage of residents stating which overlooking is stronger, into the BEDROOM or into the LIVING ROOM.

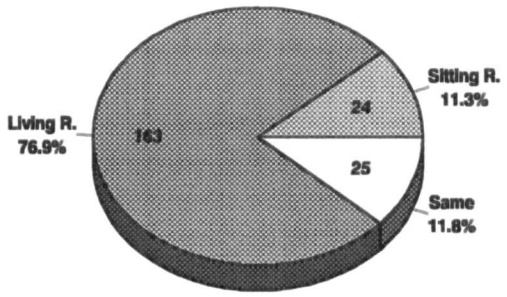

Figure 8-4: Percentage of residents stating which overlooking is stronger, into the SITTING ROOM or into the LIVING ROOM.

Furthermore, it was found that the residents of large lot houses, and houses with no overlooked yards, viewed their yards' privacy slightly more than the residents of houses with smaller lots, or houses with overlooked yards. For instance, while 18% of the residents of yards with extra fences stated that they regarded the overlooking as stronger if that overlooking occurred while they were in the yards rather than in the sitting room, only 7% of residents of yards with no extra fences expressed the same view, see Appendix-Table 8-1 and 8-2.

This was because residents of protected yards used these yards much more than unprotected yards, as was found in the former chapter. Also, as these yards were protected from overlooking, the residents considered them more private or sacred places than if they were overlooked by neighbours. Moreover, the houses of larger lots usually had large yards. As large yards were found to be used much more by residents than smaller ones, these residents would perceive their yards' privacy as more important than the residents of smaller and less used ones.

While the difference in the residents' age was found not to significantly affect the perception of the importance of the yards' privacy, the difference in residents' levels of income appeared to have some affect on this perception. It was

found that the lower income residents viewed their yards' privacy as less important than the higher income residents. This could be related to the larger yards of the higher income residents, and also to the fact that the higher income residents tended to take much more care of their yards than the lower income residents, in terms of landscaping and items added to the yards, such as children's toys, playing equipment or water fountains. Thus, the higher income residents tended to use their yards more, and attached more importance to their privacy, see Appendix-Tables 8-3 and 8-4.

8-2-2 Behavioural Dimension

8-2-2-1 Residents' Activity When Overlooking Occurred

The type of activity the residents do during overlooking, is found to affect perception of the degree of privacy violation, although the activity is of less importance than the overlooked place. For example, residents viewed privacy as more important when they were eating than if they were only sitting. Furthermore, they viewed the overlooking much more strongly while they were watching T.V. than while gardening, whereas they viewed overlooking almost equally when they were watching T.V. or just sitting, see Appendix-Tables 8-5 to 8-7.

The reason behind the differentiation in the first two cases, as discussed in the privacy chapter, is most likely due to the following factors: a) residents felt shy and bothered if somebody was watching them while eating or watching T.V., and b) residents disliked their neighbours knowing what they ate or what programme they watched on television, in order to avoid embarrassment and unwelcome curiosity.

8-2-3 Personal Character Dimension

The residents were shown the overlooking demonstration board of a neighbour overlooking one of their yards, (the demonstration board was discussed in Chapter 5 in detail). This demonstration consisted of 4 people staying in the residents' yard and another 4 people overlooking the respondent's yard from a neighbouring villa window - one at a time. These 4 people were a middle-aged man, an old man, a middle-aged woman and a child, which gave a total of 16 different cases of overlooking (4 people in the yard X 4 overlooking people). For each case, the respondent was asked to scale his view regarding the degree of overlooking. He was given a scale consisting of five expressions for the degree of overlooking, very strong, strong, medium, weak and no overlooking.

It was found that the sex and age of both the overlooker and overlooked had very significant effects on the perception of the degree of privacy violation. In the case of a neighbouring child overlooking a respondent child in the yard, it was viewed as the minimum degree of privacy violation; the case of a middle-aged male neighbour overlooking a respondent lady in her yard was viewed with the maximum degree of privacy violation, see Appendix-Tables 8-8 to 8-23.

Furthermore, in the later case, all 213 residents viewed this overlooking as either very strong or strong (85% of them stated 'very strong'). In the former case, approximately five residents out of every ten stated that they did not consider it to be an overlooking violation, two said there was weak overlooking, and the remaining three residents viewed it as medium, strong and very strong overlooking, one for each, see Appendix-Tables 8-16 and 8-23.

In order to simplify and to compare easily between the residents' expressions of these 16 cases of overlooking, Table 8-1 was constructed for the basis of giving a descending scale of weights for the five expressions (4 for very

strong, 3 for strong, 2 for medium, 1 for weak and 0 for no overlooking). Then this weight was multiplied by the number of residents who chose this expression. The resulting numbers were added together for each case of overlooking, and placed in the suitable location in Table 8-1, according to who was overlooking and being overlooked.

There are several findings which can be extracted from this table. The first was that the residents viewed the overlooking of their women folk by neighbours as the strongest form of overlooking, or privacy violation. However this strong perception varied according to the sex and age of the overlooking neighbour, where a middle aged man was considered as the strongest source of overlooking violation, followed closely by an old man overlooking, while the overlooking degree of a neighbouring woman or child was perceived as much less.

Table 8-1: The degree of overlooking stated by residents according to who is overlooking and being overlooked.
(Using a scale of weights based on residents who choose an expression for each overlooking case.)

Overlooked resident	Overlooking neighbour			
	Man	Old man	Woman	Child
Man	699 (82%)	607 (71%)	543 (64%)	317 (37%)
Old man	653 (77%)	544 (64%)	558 (66%)	315 (37%)
Woman	821 (96%)	762 (89%)	473 (56%)	363 (43%)
Child	435 (51%)	372 (44%)	311 (37%)	213 (25%)

The numbers in brackets refer to the percentage of the upper number compared to the maximum possible number, (that is 213 x 4 = 852 equalling 100%).

The second finding was that the strongest source of overlooking violation was in the case when the overlooking neighbour was a middle-aged man, which it was perceived as the most severe violation among the four cases (a middle-aged man, old man, woman and child).

The third finding was that the child overlooking was considered the weakest overlooking violation, even weaker than the violation produced by an overlooking woman. For example, the violation degree resulting from the overlooking of a neighbouring woman to a respondent man, or even a woman, was regarded as a stronger violation of privacy, than if the overlooking was done by a child.

The fourth finding was that it was clear from the residents' chosen expressions, as well as from the weighing method adapted in Table 8-1, that overlooking was viewed as a violation of residents' privacy, regardless of who was overlooking or being overlooked. The sex and age of both the overlooking neighbour or the overlooked respondent only affected the *degree* of that overlooking violation. Overlooking was perceived as a violation of privacy by most residents, even in the weakest form, when a neighbouring child overlooked a respondent's child, especially where there were several residents who chose one repeated expression for all the 16 cases of overlooking (10 respondents chose very strong and 27 respondents chose strong).

It was found, also, that the personal characteristics of the residents had some effect on the degree to which they perceived these privacy violations. As regards age, it appeared that the respondents aged between 20 and 30 years viewed their privacy violation slightly less than the older respondents, particularly respondents of 41 years old and over. Whereas, in the case of a neighbour's child overlooking a respondent woman for instance, 51% of respondents of 20-30 years old regarded this overlooking as weak or not overlooking, 41% of respondent of over 41 years old felt it to be a case of strong overlooking. Although the

difference was not marked, it was present almost in all the 16 cases, see Tables 8-2 and 8-3, and for further details see Appendix-Tables 8-24 to 8-26.

This may mean that the new generation view privacy violation as less importance than the older generations. However, there was only a minor margin of difference between the privacy perception among these generations. In order to be generalised, it has to be supported by other findings showing the same relation. As this relation is very important for future development and planning, if confirmed, it is going to be investigated in greater detail in the remainder of this chapter.

Table 8-2: Percentage of residents' perception of privacy violation in the case of a neighbouring child overlooking a respondent woman.

Expression	Resident Age groups (%)		
	0-30	31-40	41<
Very strong	7	9	10
Strong	15	19	15
Medium	26	32	33
Weak	28	26	21
No overlooking	24	14	21
Total	100	100	100

Table 8-3: Percentage of residents' perception of privacy violation in the case of a neighbouring woman overlooking a respondent child.

Expression	Resident Age groups(%)		
	0-30	31-40	41<
Very strong	7	3	5
Strong	14	19	23
Medium	22	26	21
Weak	31	21	33
No overlooking	26	31	18
Total	100	100	100

As far as residents' educational background was concerned, the highly educated respondents appeared to perceive the violation of their privacy more than the less educated. When looking at the same overlooking case - a child neighbour looking at a respondent woman - 37 % of the residents holding BSc and higher degrees considered this overlooking as weak or not overlooking, while 42% and 53% of the residents with medium (undergraduate diploma and high school) and low degrees of education (less than high school), respectively, regarded it so, see Appendix-Tables 8-27 to 8-29.

The reason for this trend is not very clear, however. It might be that the highly educated residents have clearer and more precise knowledge of their privacy rights, than the lower educated residents. As discussed in the Privacy Chapter, these privacy rights do not come from tradition only, which can be learnt generally from parents and family in time, but also from learning the details and laws involved in formulating privacy rights, which can be learnt through reading and further education.

Also, another possible reason is linked to the level of residents' income. It was found earlier that there was a higher proportion of high-income residents among the highly educated respondents, and the higher income residents showed a stronger degree of privacy perception.

Also, the level of residents' income had some affect on their perception of privacy violation. It seemed that the higher income residents viewed this violation stronger than the middle and lower income residents, see Figure 8-5 and Appendix-Tables 8-30 to 8-32. However, there was no particular reason explaining clearly this kind of attitude or feelings. Nevertheless, fear of neighbours' envy and grudges, or trying to keep personal and family matters secret, were probably more common in higher income people than middle or lower income ones, hence, this may explain some of the reasons behind the stronger perception of privacy violation among the higher income residents than the lower income ones.

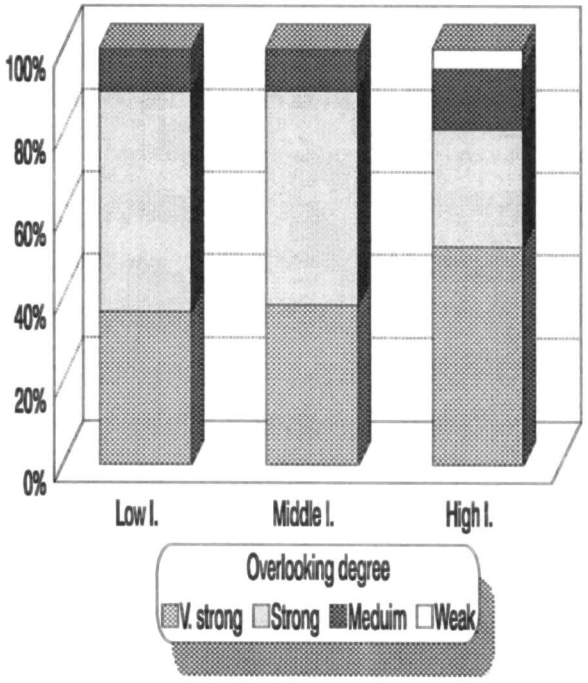

Figure 8-5: Percentage of residents' perception of privacy violation, when a neighbouring child is overlooking a respondent female member, according to the level of residents' income.

As far as cities were concerned, the residents of larger cities appeared to be more sensitive towards privacy violation than residents of smaller cities. For example, in the case of a neighbouring child overlooking a respondent woman, 37% of Riyadh's respondents regarded this as weak or no overlooking, while 48% and 83% of the respondents in Tabuk and Haqil, respectively, considered it the same degree, see Appendix-Tables 8-33 to 8-35.

The reasons for this difference between large and small cities could be related to the fact that in smaller urban centres, such as Haqil, residents of the same street or neighbourhood, usually have stronger social relationships than the residents in larger centres, such as Tabuk and Riyadh. The reason could be that the residents of smaller centres were more likely to be from the same tribe, family, region or simply they had been neighbours or friends for a long time.

Also, another important factor was that larger cities usually had a much higher percentage of Saudis from other parts of the country, and foreigners among their inhabitants, than the smaller cities or towns. Thus, overlooking between neighbours who had strong social relationships tended to be viewed with less sensitivity or degree of violation; neighbours would care more for each other, and tried not to allow this kind of behaviour. Also, even in the case when overlooking did occur, the overlooked residents tended to consider it as a minor or rare mistake from that neighbour. He would try to avoid the assumption of bad intention from the overlooking neighbour, and tried to be patient and solved this matter with dialogue and understanding with the neighbour, in order to make sure that it would not happen again.

As regards travelling and living for a short time abroad, no significant affect on privacy perception was found. Only in a few cases of overlooking, such as a neighbouring man overlooking a respondent woman and a neighbouring woman overlooking a respondent man, did the residents who had lived abroad for

sometime view the privacy violation slightly less than the residents who had not travelled, see Appendix-Tables 8-36 to 8-38.

Also, some of the physical characteristics of a house were found to have some effect on the residents' perception of privacy. The residents of larger lot houses, for example, showed a stronger perception of privacy violation, than the residents of smaller lots, see Figure 8-6. While only 13% of the residents of smaller lots (less than 600 m2) perceived a neighbouring child overlooking a woman as a very strong violation. 35% and 40% of the residents of medium and large lots, respectively, perceived this violation as very strong, see Appendix-Tables 8-39 to 8-41.

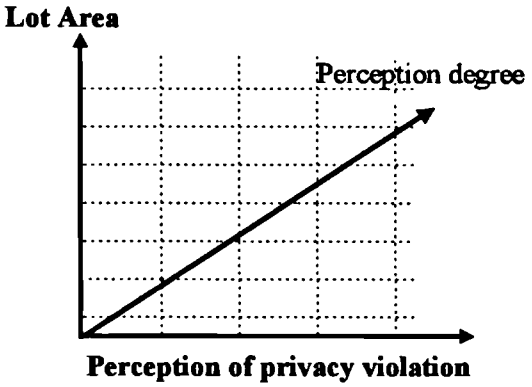

Figure 8-6: Relationship between the degree of resident privacy perception in relation to change in lot area.

The reason for this differentiation was related to several factors: a) the residents of smaller lots were mostly of low or low middle income groups, who showed less perception of privacy violation than the middle and high-income residents; b) the residents of larger lots, used their yards more than smaller lots residents, as the yards were generally larger in the former and smaller in the latter. Thus residents of larger lots tended to use their yards more often, and they would be affected by overlooking violation much more than the residents who used their yards less.

Another physical characteristic of the house, that had some affect on residents' perception of privacy, was the presence of an extra fence. Residents of houses with an extra fence appeared to perceive any overlooking onto their yards more strongly than the residents of houses without an extra fence. The

overlooking by a neighbouring old man onto a respondent old man was regarded as a very strong violation by 56% of the residents of houses with an extra fence, as compared to 50% of the residents without an extra fence. On the other hand, in the case of a neighbouring woman overlooking a respondent child, 61% of the residents of houses without an extra fence considered it as 'weak' or 'no overlooking', with 50% of the residents with extra fences saw this as 'weak' or 'no overlooking', see Appendix-Tables 8-42 to 8-44.

The residents of houses with extra fences had spent considerable amounts of money building these fences, which meant, first, that they cared more about their privacy, and second, they had a large yard that they wanted to use freely. Comparing these residents to the residents who did not have large yards, or who did not care much about privacy, explained the reasons behind the strong perception of privacy violation for the first group of residents.

8- 3 Residents' Perception of the Importance of Privacy

The importance of privacy in residents' opinions can be measured practically through two aspects, the residents use of yards and windows (behavioural aspect), as well as the construction of extra fences in the house (physical modification aspect). Residents who strongly perceived overlooking violation, and regarded it as a significant and important issue, would limit their use of the overlooked yards for family activities, or build an extra fence to protect their yards from overlooking. In the following section the degree of privacy violation is measured and analysed through the two aspects mentioned.

8-3-1 Behavioural Aspect

8-3-1-1 Type and Degree of Yard and Roof Use

In the previous chapter, it was proved that residents used their overlooked yards much less than not overlooked yards, especially for activities involving female members of the family. Table 7-1 illustrated the effect of privacy violation on the residents' activities very clearly. Also, the residents' answers for the reasons behind not using some of the house yards illustrated the extent the overlooking violation had on residents who did not use overlooked yards. The problem of neighbours' overlooking violation was identified as the main reason for not using yards by 86 out of 182 residents, who considered one or more of their yards of no great use, refer to Appendix-Tables 7-3 and 7-4 for detail.

Moreover, the effects of overlooking on residents was much clearer in the case of roof use, particularly for women or family sitting, where only 2 residents stated that they used their overlooked roof for family sitting, while 26 residents of the 'not overlooked' roofs stated that they used their roof for this activity, see Table 7-21 for details.

8-3-1-2 Frequency of Opening Windows

Almost all the residents with overlooked bedroom or living room windows stated that they would open these windows more if there was no overlooking neighbour. Furthermore, as illustrated in Figure 7-22, the frequency of opening the 'not overlooked' windows was much higher than for 'overlooked' windows, which gave another indication of the degree of importance of privacy the residents had in their minds, and which was reflected in their behaviour.

8-3-2 Physical Modifications Aspect

8-3-2-1 Constructing Extra Fences

About 6 out of every 10 houses had one or more extra fence added to it. All the residents who had build an extra fence indicated, firstly, that the protection from a neighbour overlooking was the main reason for adding these extra fences in the yards, although, they gave different secondary reasons, see Appendix-Tables 8-45 and 8-46 for more details.

However, most of the remaining houses - without extra fences - or at least some of them, could be modified with extra fences some time in the future. This was because many of them were adjacent to vacant land during the time the survey was conducted. So, as soon as these vacant lands are built upon, residents would have to face the overlooking problem. At that time, they would consider the possibility of building an extra fence, and the majority of them would most likely choose to build this extra fence.

Thus, the wide spread use of such a structure is a significant indicator of the importance of overlooking violation in residents' opinions, particularly when the building of these extra fences was costly for the residents taking this decision, both in the form of direct and indirect costs.

The direct costs are the financial costs involved in the building materials and labour needed to erect such structures. The indirect costs are the disadvantages of building the extra fence on the facade of the villa, blocking its appearance from the street, and wasting large amounts spent on making the villa facade look nice from the outside, see Figure 8-7.

Figure 8-7: Even though the residents had spent a large amount of money on making their house facades look nice from the street, building the extra fences on these facades blocked their view from the street, causing aesthetic damage to the houses' appearance and wasting a large amount of money. Photo from King Fahad suburb, Riyadh.

8- 4 Reaction of Residents to Overlooking

8-4-1 Degree of Residents Reaction

In order to established the residents' reaction to neighbours overlooking, a theoretical situation was presented to the respondents. The situation assumed that the respondent was sitting in his yard alone, and one of his male neighbours was looking out through the neighbour's first floor window overlooking the respondent in his yard, and the neighbour seemed to be intentionally overlooking this respondent. The respondent was then given 4 choices for his expected reaction. These choices were as follows:

1- I would not be bothered by this overlooking and would stay in the yard.
2- I would be bothered but would continue to stay in the yard, and pretend there was no overlooking.
3- I would be bothered but would stay and react to this overlooking by------
4- I would be bothered and would not stay in the yard.

Where, choice No. 1 represented the weakest reaction to overlooking, No. 2 represented the medium reaction, and Nos. 3 and 4 the strongest reactions. Also, for simplicity, the residents' answers to this question will be called the residents initial reaction, in order to distinguish between the answers to this question and the following question.

The vast majority of the respondents (74%) chose No. 3 as the answer to this question, as illustrated in Figure 8-8 and Appendix-Table 8-47. Choice No. 3 was designed to be an open-ended question, in order to let the residents express themselves and state their reaction freely. So a wide range of answers was collected and combined together to produce a variety of residents' reactions to overlooking. These reactions would present a further indicator of the importance of privacy violation in residents' minds and behaviour.

However, the respondents who chose answer No. 3, gave different forms of reaction to this overlooking situation, as can be seen in Figure 8-8. Approximately, half of them stated that they would talk to the neighbour to understand why he was behaving in this way, and to ask him not to do it again. Some residents chose to go further by using stronger and harsher language, stating that they would warn the neighbour to stop overlooking, and asking him not to do it again. Others explained that they would talk to the neighbour, but if he continued, they would build an extra fence to block the neighbour overlooking permanently, see Appendix-Table 8-48. The answers to this question will be called the residents' second reaction, as it is a follow-up behaviour to the initial reaction in the former question.

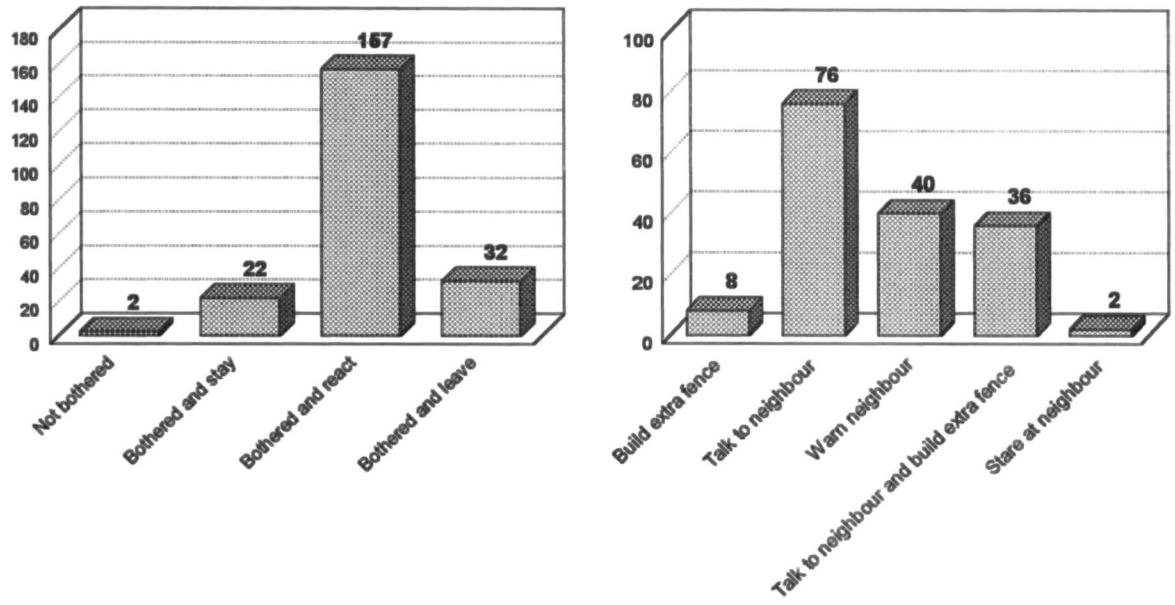

Figure 8-8: The number of residents' answers of their view or feeling in the case of a neighbouring male overlooking them in the yard, and how they would react to it. The chart on the left is the initial reaction, and the one on the right is the second reaction.

Although, the overall compound answers for these two questions were as stated above, some residents gave very interesting individual answers to the second reaction, which are worth mentioning and could clarify the residents' reactions, as well as their opinions of the degree of privacy violation.

One respondent from al-Shifa (Questionnaire No. 4) objected that:

> "there is no need for me to react to that neighbour, as the neighbour would surely know this type of overlooking will violate his neighbour's privacy, therefore, the neighbour himself will not do such a thing, so there is no need for reacting."

So, the respondent was omitting the possibility of an intended and direct overlooking. This maybe the case because actually he had no potential overlooking neighbour, as the only adjoining villa that could overlook his main yard and Y 2 had no windows overlooking the respondent's yards. His answer might have been different if he had had an overlooking neighbour, who could

cause the respondent some overlooking violation, and make him reconsider this opinion.

Another resident from King Fahad (Questionnaire No. 65) went further, when he said that :

> "I would first try to talk to him, if he did not listen and continued I would throw a stone at him. If he insisted and did not stop I would call the police."

A resident from al-Sulimanya (32) went to an extreme, and stated that:

> "If I was sure that this neighbour was intentionally overlooking my yard, I would go to his house, knock on his door and start a fight."

However, this resident seemed to be very sensitive towards overlooking violation, as he answered "very strong" to all the 16 cases of overlooking, when he was shown the overlooking demonstration. Nevertheless, his view was an illustration of the maximum degree of privacy importance that can be perceived in residents' opinions.

On the other hand, some residents stressed the point of who was overlooking and what was the real intention behind this overlooking. For instance, a resident from al-Sulimanya (Q. No. 113) indicated that he would speak to the neighbour and ask him to close the window and go inside his house. Also, he added that:

> "The important thing is not who is in my yard, rather who is the one overlooking and what is the real intention of this overlooking. Did it happen by chance or was it intended? If the overlooking neighbour is a young man, the bad intention is more possible than if the overlooking neighbour is an old man, woman or child, because the overlooking of a woman or a child is considered curiosity."

Whereas, another resident from the same suburb (Q. No. 27) stated that:

> "For me, it is not important who is overlooking and for how long he/she has been doing it, as the overlooking is a violation of my privacy, regardless of who is overlooking or who is being overlooked."

Two contrasting points of view: the first respondent was stressing the identity and intention of the overlooking neighbour, while the second respondent saw this as unimportant, and instead he considered overlooking as a violation of his privacy regardless of the identity or the intention of the overlooking neighbour. Although, the view of the second respondent was not shared by many residents, this resident's point is still valid, alongside the other views of overlooking and is an example of the resident's privacy perception.

8-4-2 Effects of Residents' Characteristics on Their Reaction

This section will investigate if the residents' reaction to overlooking was affected in any way by their characteristics. It will try to establish the reasons behind this differentiation, and give an explanation for it, as far as the survey findings and data can provide and support the argument behind these reasons.

8-4-2-1 Income

Regarding the first question on the resident's first reaction (about what the resident would chose to do if the theoretical case of overlooking had happened), the lower income respondents appeared to have the strongest reaction to overlooking compared to the middle or higher income residents, see Figure 8-9. As for the second or subsequent reaction, the lower income group, also, gave a stronger reaction than the middle or

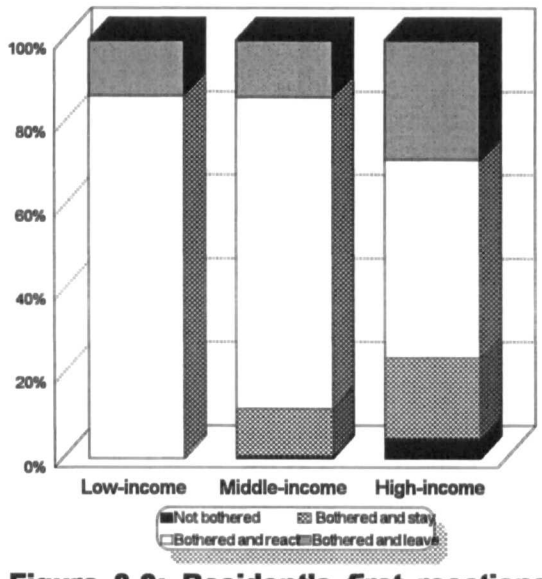

Figure 8-9: Resident's first reactions to overlooking, according to their level of income.

higher income residents. Also, the high-income residents gave the weakest or softest reaction, see Appendix-Tables 8-49 and 8-50.

The weak reaction of the higher income residents may appear to contradict their earlier views, in connection with the overlooking demonstration, where they showed a stronger degree of privacy perception. The most likely explanation for this is that although the higher income residents had a stronger perception of privacy, when it came to reactions, they showed a weaker and cooler reaction to overlooking violation, than the middle or lower income residents.

8-4-2-2 Education

The residents with lower educational levels gave slightly stronger answers to the first reaction, when compared to the middle and highly educated residents, see Appendix-Table 8-51. For instance, the only two residents in the whole survey, who stated that they would be not bothered by the neighbour overlooking, were of a high educational background (university degree holders).

Regarding the second reaction, the residents of higher and middle educational qualifications gave a slightly higher percentage of stronger and harsher language describing their reaction, such as "warning the neighbour" (15% for the lower educated and 20% for the middle and higher educated). Similarly the lower educated residents showed a slightly higher percentage of weak language, such as "talk to the neighbour" (45%, 32% and 34% for the lower, middle and higher educated, respectively), see Appendix-Table 8-52.

These findings go well with the earlier findings of the residents' perception of privacy violation, and could be related to the same reasons, where the higher educated residents showed a stronger degree of privacy perception.

8-4-2-3 Respondents' Age

With regard to the first reaction, the proportion of residents choosing stronger language or reactions were very similar for all the age groups of the residents (between 87% - 91%). However, a relatively higher percentage of middle-aged residents chose "bothered and will not stay in the yard" than the younger or older residents, see Appendix-Table 8-53.

Concerning the second reaction, the older residents showed a higher proportion of calmer behaviour and used less strong language for their reaction, for example "talk to the neighbour", while the middle and younger residents gave a higher percentage of stronger reactions, such as "talk to the neighbour then build an extra fence", see Figure 8-10 and Appendix-Table 8-54. This indicated that the older residents preferred to settle their privacy violation problems with their neighbours through dialogue and understanding, while the younger residents were more likely to be stronger in their reaction. Also, more of the younger residents indicated that they would talk to the neighbour, but if that did not work, they would build an extra fence, in order to settle the problem forever.

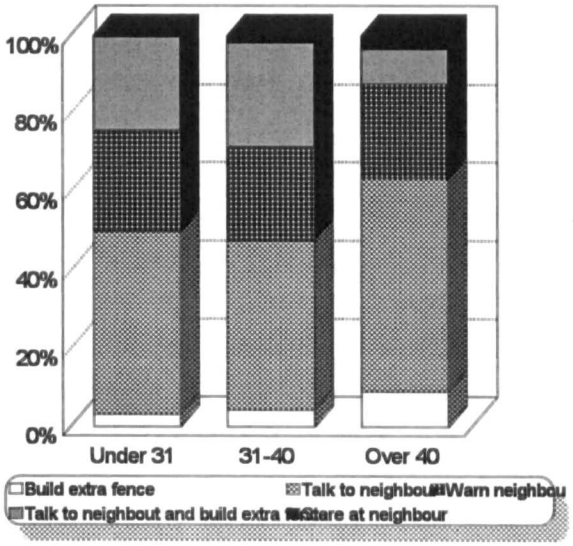

Figure 8-10: The percentage of the residents' second reaction according to their age groups.

However, regarding the statement made in the previous section, that the younger generation perceived their privacy violation less strongly than the older generation, these two reactions of the younger generation did not support nor disapprove the statement, and seems instead to be related to the slightly more aggressive style of the young, and the less confrontational approach of the old.

8-4-2-4 Respondents' Travel and Participation in House Design

The only significant correlation found between the residents' reactions and travelling and living abroad, was that the residents who lived abroad for sometime showed a higher tendency to choose "bothered but will stay", when compared to the residents who did not live abroad, see Appendix-Table 8-55 and 8-56.

As this choice was considered a medium reaction, and as it was the only correlation found in both the first and second reactions, it is not safe to generalise here that travelling or living abroad leads to a lesser degree of reaction or perception of privacy violation, particularly because there was no significant correlation between privacy perception and travelling abroad, from the residents' responses to the overlooking demonstration discussed earlier.

Concerning the residents who participated in the design of the house, they showed a slightly weaker reaction for both the first and the second question. For instance, 22% of the residents who participated in the house design framed their second reaction in strong language (warning the neighbour), while 29% of the residents who did not participate used the same language, see Appendix-Tables 8-57 and 8-58.

No possible direct reason was found to explain this relation. However, it was probably related to the fact that the higher income and higher educated residents, who accounted for many of the residents who had participated in their house design, showed weaker reactions to the overlooking violation.

8-4-2-5 House Ownership

Tenants used stronger language for both reactions, as compared to homeowners, see Appendix-Tables 8-59 and 8-60. This was probably due to two

reasons. First, since tenants were there temporarily and had lived there for only a short time, they tended to have weaker relationships with their neighbours. Thus, when there was an overlooking violation from the neighbours, these residents would deal with it more strongly than home-owning residents, since the homeowners usually had a stronger relationship with their neighbours, and would feel less threatened and try to solve the problem more peacefully. Secondly, on average, the tenants residents were younger than the homeowners, and, as was found earlier, younger residents tended to show a much stronger reaction than the older residents.

As regards residents' length of residence, household size and place of birth, there was no significant correlation found between these factors and the residents' reactions to overlooking violation.

8-4-2-6 Size of Urban Centre

The percentage of Riyadh's and Tabuk's residents was higher in the use of strong language for both reactions, such as "bothered and will not stay" for the first reaction, and "warn the neighbour" for the second reaction. At the same time, Tabuk's and Haqil's residents gave a higher proportion of the statement "talk to the neighbour" for the second reaction, see Figure 8-11 and Appendix-Tables 8-61 and 8-62.

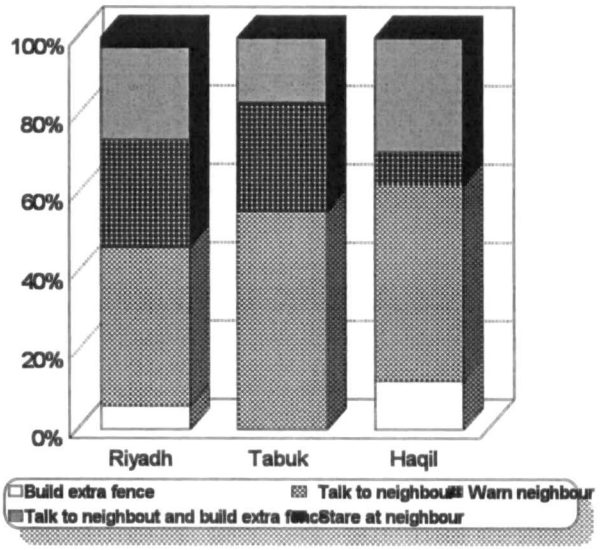

Figure 8-11: Percentage of residents' second reactions to overlooking violation, according to their city of residence.

The statistics suggest, first of all, that Haqil's residents showed the strongest tendency to solve the overlooking violations with neighbours by dialogue and understanding, as they tended to have stronger social relationships with their neighbours. Thus, harsh and strong reaction or language, such as "warning the neighbour" was much less needed to solve the overlooking problems between these residents.

Secondly, the residents of larger urban centres showed more tendency to strong reactions and language to overlooking violation, as the social relationships among neighbours are not as strong as those in small urban centres. This was due to the fact that a higher percentage of residents from other countries or other parts of Saudi Arabia in the large cities and thus less social coherence.

Thirdly, the reason for the high percentage of Tabuk's residents choosing strong language, in the case of the second reaction, was due to the differentiation between the two surveyed suburbs there. For example, 36% of al-Sulimanya residents stated that they would "warn the neighbour" for the second reaction, while only 13% of al-Nahdha residents gave this response. At the same time, while a larger proportion of al-Nahdha's residents indicated that they would talk to the neighbour to settle the overlooking violation (63%), a much lower percentage of al-Sulimanya residents chose this response (36%), see Appendix-Tables 8-63 to 8-66.

As al-Nahdha had a higher percentage of nomadic and similar background residents, they tended to have stronger social relationships between neighbours, which would generally lead to a higher tendency of solving the overlooking problem peacefully and smoothly. The reason for al-Sulimanya residents giving stronger reaction, was due to the concentration of larger numbers of residents coming from other parts of the country and foreign residents living there, which led to mainly weaker relationships between neighbours in this suburb.

8-4-2-7 Respondents' Perceptions of Privacy

It seems obvious to assume that the residents perceiving their privacy violation highly, would give a stronger reaction and use stronger language for both reactions. This was proved to be the case. The investigation of Figure 8-12 firmly supports this assumption, and shows that the strength or harshness of the residents' reaction grows with the increase in the degree of privacy perception, for further details see Appendix-Table 8-67 to 8-72.

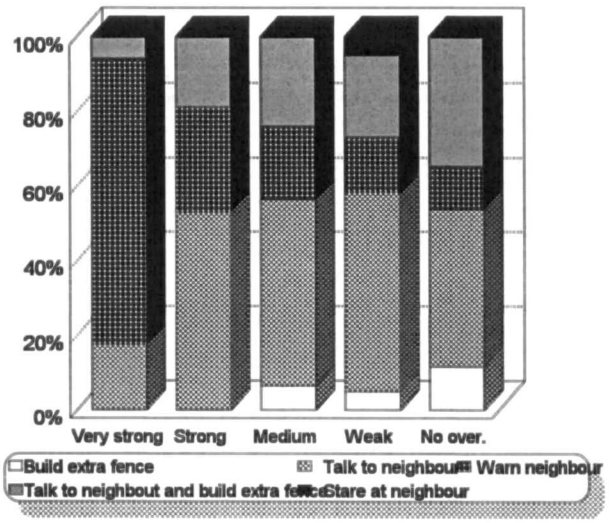

Figure 8-12: The percentage of residents' second reactions according to their privacy perception of the overlooking of a neighbouring child to a respondent woman.

8-4-3 Physical Modifications Aspect

8-4-3-1 Lot Area

There was no significant or very clear correlation found between lot area and the residents' reactions to overlooking violation. However, the residents of smaller lots were found to give a slightly stronger reaction, than the residents of larger lots. Approximately 27% of the smaller lots' residents stated that they would "warn the neighbour" for the second reaction, and 80% would be "bothered and will react" for the first reaction, while, 23% and 69% of the larger lots' residents gave the same response for both reactions, respectively, see Appendix-Tables 8-73 and 8-74.

Although, the larger lots' residents showed a stronger degree of privacy perception in the former section, they tended to choose less strong language when

it came to their reactions, though, a higher proportion of them stated that they would "talk to the neighbour and then build an extra fence". Also, there was a possibility that the smaller lot residents reacted more strongly and used harsher language, than the residents of larger lots, particularly because a high proportion of the smaller lot residents were of low income, who earlier showed a higher tendency for stronger reactions as well as stronger language.

8-4-3-2 Constructing Extra Fences

The residents of houses with extra fences had a much higher percentage of stronger reactions and harsher language for both reactions, particularly the second one. As illustrated in Figure 8-13, whereas 29% of the residents of houses with extra fences stated that they would "warn the neighbour", only 18% of the residents of houses without extra fences chose this response, see Appendix-Tables 8-75 and 8-76. This indicated a stronger reaction among the residents of houses with extra fences.

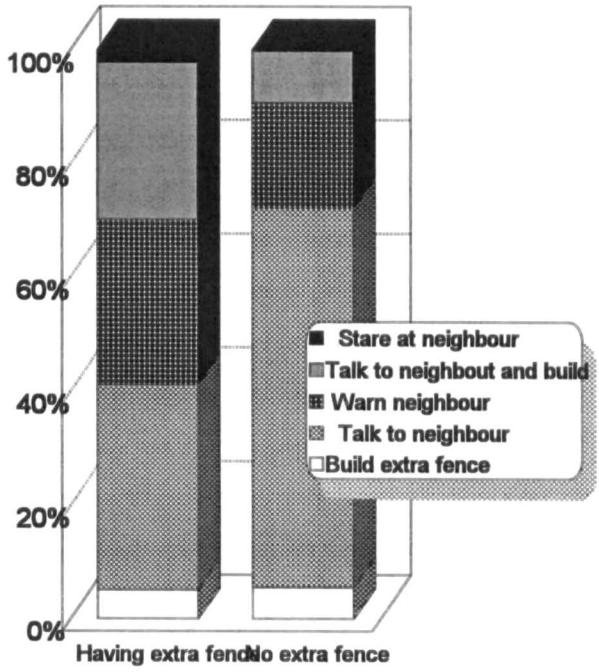

Figure 8-13: Percentage of residents' second reactions to overlooking violation, according to the presence of extra fences in the house.

The most likely reasons for this that these residents had lost large amounts of money in constructing these extra fences, in both direct and indirect costs, which resulted in protected yards. Hence, the residents got used to these protected yards, and using them freely for their family activities. Also, as overlooking violation became uncommon for them when overlooking occurred, their reaction tended to be much stronger and harsher than if they were used to overlooking.

On the other hand, as the residents of houses without extra fences faced a higher degree of overlooking violation, they, somehow became more used to it. Therefore, their reaction was less strong than other residents. They showed a much higher tendency to solve the overlooking problem through talking and coming to an understanding with the neighbour, where 63% of them stated that they would "talk to the neighbour", while only 36% of the residents of houses with extra fences showed the same attitude.

In any case, many of the residents of houses without extra fences stated that their neighbours rarely overlooked their yards. This gave another possible explanation for the weaker reaction of the residents of these houses, as well as explaining an important reason behind the absence of extra fences in these houses.

8-4-3-3 Yard's Mostly and Rarely Used

When looking at the reaction of the residents who stated that none of their yards was useful, it appeared that they showed a much less strong reaction and language for both reactions, when compared to the residents stating that all of their yards were useful. For example, while 5 out of 21 residents of the first group indicated that they would "warn the neighbour", 10 out of 21 residents stated the same response in the second group, see Appendix-Tables 8-77 and 8-78

The reason behind this was mainly that the residents stating that none of their yards was useful have nothing to lose from overlooking, since they were not using their yards in the first place, mainly due to narrowness of the yards. On the contrary, the other group of residents were benefiting a lot more from their yards and they showed a much greater use of the yards for various types of activities. Therefore, they would perceive any overlooking violation more strongly, and would react to it with stronger and harsher reactions and language.

8- 5 Summary of Findings

- The residents viewed their privacy in indoor spaces as much more important than privacy in outdoor spaces. Even among different indoor spaces the privacy degree tended to vary. For example, only 15 residents of the 213 viewed the overlooking of their yards as a stronger violation than overlooking the sitting room, but no resident viewed overlooking of their yards as stronger than overlooking the living room or the bedroom. Bedroom overlooking was perceived as the strongest overlooking in residents' opinions, followed by the living room and then the sitting room.

- The type of activity during overlooking was found to have great effects on the degree of privacy violation perception. Most residents stated that they perceived the privacy violation during eating more than when only sitting, and overlooking whilst watching TV more than when gardening.

- Sex and age of both the overlooking neighbour and the overlooked residents were found to have significant effects on the degree of the perception of this overlooking or privacy violation. The case of a neighbouring child overlooking a resident child was found to be viewed as the minimum degree of overlooking violation, while the case of a neighbouring middle-aged male overlooking a resident woman was considered the strongest degree or form of overlooking violation.

- Overall, overlooking was perceived as a violation of residents' privacy, regardless of who was overlooking or being overlooked. The sex and age of both the overlooker and overlooked affected only the degree of that violation, but in all cases it was perceived as a violation of privacy by most residents.

- The younger respondents were found to perceive their privacy violation slightly less than the older respondents. On the other hand, the highly educated respondents viewed their privacy violation slightly stronger than the lower educated ones, and the higher income respondents viewed their privacy violation stronger than the lower income respondents.

- The perception of privacy was found to increase with the increase in city size; Riyadh's respondents showed a higher degree of privacy violation, than Tabuk or Haqil respondents.

- It was found that increase in the lot area generally leads to an increase in the perception of privacy violation. Also, residents of houses with extra fences perceived their privacy violation much stronger than the residents of houses without extra fences.

- Approximately 75% of the respondents indicated that they would be bothered and would react in the case of a neighbouring male overlooking them in their yards. This reaction varied between "talking to the neighbour", "warning the neighbour" or "building an extra fence". The strength and weakness of this reaction, with regards to respondents' personal aspects and others, was very close to the relations found in the respondents' perception of privacy, when they were shown the overlooking demonstration board.

9-

RESIDENTS' AWARENESS OF PLANNING REGULATIONS AND PREFERRED FORM OF HOUSE

9-1 Introduction

Residents' awareness of the planning regulations applied to their villas is discussed and analysed in the first part of this chapter. Also, the residents' ideal form of house is determined and discussed, as well as discovering whether the residents are willing to give up the villa form of house in order to increase the privacy in their ideal house. All these issues are then analysed from three aspects, in order to find out if these aspects have any influence on the above issues. These aspects are the residents' personal aspect, the residents' behavioural aspect and the physical dwelling aspect of the residents present house.

9-2 Residents' Awareness of Planning Regulations

In order to assess the residents' awareness of the planning regulations applied to their villas, the respondents were asked: "What is the purpose of building your house with yards surrounding it?" The question was worded in that way in order to find out what the residents have in mind regarding setback regulations and house form, without reminding them of the existence of planning regulations, or indicating that they are the ones responsible for the form of their homes and yards.

Furthermore, in order to find out whether these respondents were aware of the planning regulations involved, and the extent of their awareness, the residents were asked another question regarding their knowledge of the setback regulations, applied to their villas, as an example of the planning regulations. The question they were asked was: "Does the respondent know the setback requirement for his dwelling that is required by the municipality?" They were given three choices to

this question; "1) the respondent knows the exact requirement, 2) the respondent knows about the setback requirements but does not know them exactly, 3) the respondent does not know about the setback requirement."

The answer to the first question came as illustrated by Figure 9-1, where the majority of respondents (69%) indicated that they were aware of the planning regulations involved in shaping the house form and yards. There were other answers, such as for house ventilation, to provide gardens, to provide spaces for outdoor activities and others, see Appendix-Table 9-1 and 9-2.

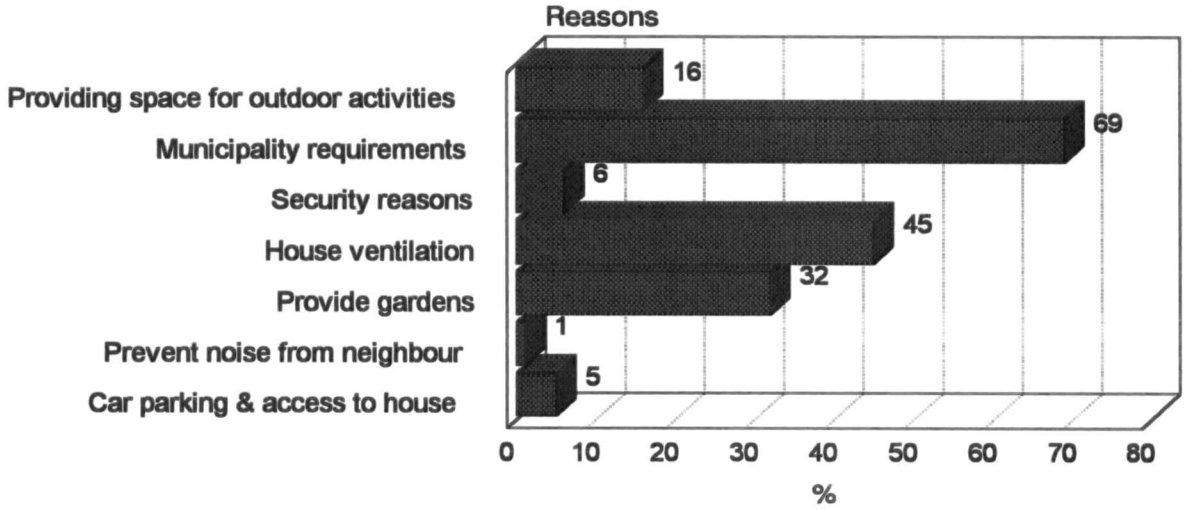

Figure 9-1: Respondents' reasons for building their villa with yards surrounding it (in percentage).

Only 31% (64 respondents) of the respondents failed to point out the municipality regulations as one of the causes for this form of yards and house. However, it is possible that some of these respondents knew about municipality and setback regulations, but they forgot to indicate this when answering, particularly as it was an open-ended question. This will be examined as follow, after discussing the second question.

For the second question: "Does the respondent know the setback requirement for his dwelling that is required by the municipality?", 42% of the respondents claimed to know the exact setback requirements applied to their villa,

while 54% indicated that they knew that there were setback requirements but they did not remember what they were exactly, and only 3% indicated that they did not know about these requirements, see Appendix-Table 9-3. An approximate check on the setback measurements given by the first group showed that the majority of them were accurate, while the rest showed that they were close to the right measurements. Only a few respondents gave a definitely wrong measurement (such as 3 and 4 metres side setback).

Coming back to the point of the respondents not indicating the municipality requirements, it is found that the majority of these 64 respondents (31%) indicated that either they knew the exact setback requirements (12 respondents), or they knew about them but did not remember them precisely (45 respondents). The 7 respondents who stated that they did not know about the setback requirements were all among this group of respondents, see Appendix-Table 9-4.

Therefore, it is quite reasonable to claim that, as an outcome of these two questions, the majority of the respondents have good and reasonable knowledge about the planning regulations applied their villas, in general, and about the setback requirements in particular.

9- 3 Residents' Preferred form of House

For this part, the respondents were shown the three models prepared for this part of the questionnaire. These are: 1) a villa, 2) a villa with a courtyard, 3) an attached house with a front and central yard (the villa as the present house form, the attached house as a modification of the traditional house form, and the villa with a central yard as a modification of the villa form, see chapter 5 for more details).

Then, they were given a theoretical situation which assumes that the respondent had decided, for some reasons, to demolish his existing house and rebuild it again, and the municipality had no planning or building requirements whatsoever. Therefore, the respondents could build whatever house type or form they liked. The three models were shown to the respondents, and they were asked "Which form of house would you prefer for your future house?" They were also given the chance to add any modification they might like to add to the three models.

The answers came almost equally divided between the three models, as can be seen from Figure 9-2. However there were slightly more respondents who chose the courtyard villa form of house (79 respondents), while the villa form came second (69 respondents), and the attached or courtyard house form came last (65 respondents), see Appendix-Table 9-5. If the two villa forms are combined together - as they are both detached house forms - that would result in over two-thirds of the respondents preferring the villa form of house, to the attached house.

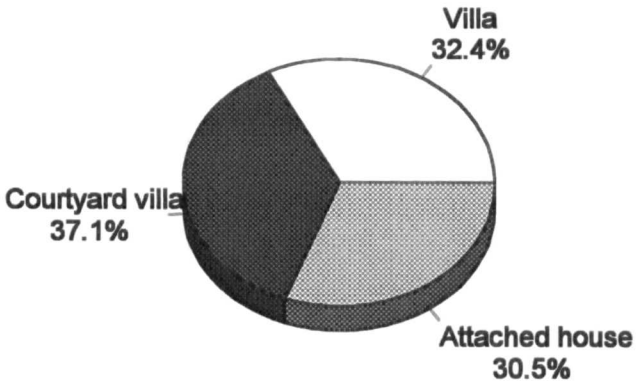

Figure 9-2: Respondents' preferred form of house (in percentages).

This finding has a very significant meaning and implication for this research and supporting its main hypothesis. The primary meaning of this finding is that most of the respondents prefer the villa house form in contrast to the courtyard house, regardless of its disadvantages in terms of higher degree of privacy violation. However, this point will be discussed and analysed in much greater detail later in this chapter, as well as in the concluding chapter.

Furthermore, and in order to exclude the possibility that the respondents might not know the fact that the villa form of house is more exposed to overlooking than the attached house, directly following the previous questions, they were given two question-statements, in order to find out their knowledge regarding this point. The first question was about the setback regulations, and its implications on the house form, and reads: "Does the respondent believe that the setback requirements have: 1) decreased overlooking, 2) increased overlooking, 3) did not affect overlooking, 4) others?"

The second question was about the house form and overlooking, and reads: "Does the respondent believe that the attached house with a central yard is less exposed to overlooking than the house with setback and yards from all sides?" These two questions were intentionally asked after the respondent had chosen his preferred form of house, so the contents of the questions would not intervene or influence the respondents' answers concerning their preferred house form.

The answers to these questions show that the respondents were quite aware of the effect of house form on the degree of overlooking, and that the villa form of house was more exposed to neighbours overlooking than the attached house.

For the first question, 203 respondents out of the 213 stated that they believed that the setback regulations have increased the degree of overlooking between neighbouring houses. Only 10 respondents believed that the requirements have no effects on the degree of overlooking, but no respondent at all believed that these requirements have decreased overlooking, see Appendix-Table 9-6. This high proportion indicates clearly that the vast majority of the respondents are aware of the effects of the setback requirements on the degree of overlooking.

As for the second question, all the respondents indicated that they agree with the statement that "the attached house with a central yard is less exposed to overlooking than the detached house from all sides". However, a quarter of them

added some comments on this point. These comments were : "yes, but setback is better for house ventilation" (20 respondents), "yes but they will cause security problems" (15 respondents), "yes but the house will be enclosed" (15 respondents), "yes but with large lot sizes" (4 respondents). These comments, also, indicate, in general, the reasons why respondents prefer the villa house form rather than the attached house, see Appendix-Tables 9-7 and 9-8.

The vast majority of these comments were made by the respondents who preferred one of the villa forms - more than 90% of these comments came from these respondents, whereas only 7% came from the respondents who chose the attached house form. This indicates that these respondents made their comments trying to justify or explain their preference of the villa form to the attached one, see Appendix-Table 9-9.

These comments were made perhaps only when the respondents were face with, or perhaps reminded of the fact that the villa house form is more exposed to overlooking than the attached one. Therefore, these respondents preferred to express their reasons for choosing that form. In particular only 4 respondents out of the 64 who preferred the attached house, commented on that statement, while 51 respondents out of the 146 who preferred one of the villa forms did so.

These comments show that the ventilation, security and out-look view were the important issues, in the respondent's minds, and were the main issues which made them prefer the villa form to the attached house form, although the respondents knew that the villa form of house would have a much higher degree of neighbours' overlooking. This overlooking would, therefore, lead to a reduction in the degree of their privacy in the house, and would limit their use of the house yards, particularly for family and female activities.

Going back to the question of the preferred house form, as mentioned above, the respondents were given the chance to suggest any modification they

might like to add to the chosen model. Four out of every ten respondents added some modifications to their chosen model. The vast majority of these modifications were made by the respondents who chose the attached house form. For instance, whereas only around 20% of the respondents who chose one of the villa forms added their modifications, about 90% of the respondents choosing the attached house form suggested one or two modifications to the model they were shown, see Table 9-1 and Appendix-Tables 9-10 to 9-13.

Table 9-1: The respondents' suggested modifications to the preferred form of house, and the number of these respondents.

Respondents' suggested modifications	Preferred House Form			Total
	Villa	Villa with courtyard	Attached courtyard	
Providing large lots	7	10	7	24
Requiring setback from two sides of the lot only, the front and one of the side yards	0	1	22	23
Requiring no setback from the overlooked side only	2	1	12	15
No setback requirement from one side only, from the back side of the house	0	1	14	15
Requiring setback from front only	0	0	12	12
Providing one or more semi-courts	2	0	2	4
Make windows open to one or two sides of the dwelling only	0	1	2	3
Increasing fence height to reduce overlooking	3	0	0	3
Make the upper floor windows prevent neighbour overlooking	3	0	0	3
Total	17	14	71	102*

* The reason for this number exceeding the 40% mentioned earlier is that some of the respondents gave two modifications.

The reason behind this very high proportion of modifications to the attached house is mostly related to one main factor, the setback requirements. This house form was the only one with the exceptional setback requirements. On the other side, setback requirements from all sides were the fundamental

characteristic separating the two villa house forms from the attached one. This characteristic has significantly limited the number or possibilities of modifications the respondents might add to this form, except, as suggested by some of them, for the lot size, window orientation, and increases in the fence height. On the other hand, the absence of setback requirements in the case of the attached house has made it much more flexible and open for modifications, compared to the other villa ones.

This significantly encouraged the respondents to suggest their modifications to the attached form. The evidence, supporting this explanation, is clear when examining the types of these modifications, as most of them were concerning setback requirements. Another indication of this is that the respondents' modifications, which did not involve setback matters, were mainly made by the respondents choosing one of the villa forms, and they were small in number and proportion anyway.

9- 4 House Form Preference and Residents' Personal Circumstances

9-4-1 Income

First of all, regarding the respondents' awareness of planning regulations, it is found that there is no significant notable correlation between respondents' income and their awareness of planning regulations. However, the higher income respondents showed two tendencies, although they were not very different from the middle and lower income respondents. The first tendency is that 6 respondents out of the 7 who indicated that they didn't know about the setback regulations were from middle and lower income groups (3 respondents from each group), while there was only 1 respondent unaware of the setback regulations from the higher income group.

The second tendency is that, the respondents who claimed to know the exact setback requirements were largely from the middle and lower income groups, while the higher income respondents form a lower proportion in that category, as can be seen in Figure 9-3, and Appendix-Tables 9-14 to 9-16. One of the principal explanations for this tendency is perhaps that the higher income respondents would generally have more properties than just the surveyed house. As the number of properties increases, memorising the exact setback and planning regulations becomes harder for these respondents. In the case of the middle and lower income groups, the respondents would generally own far fewer properties, perhaps only the surveyed house. Thus, in this situation, memorising the setback requirements becomes easier.

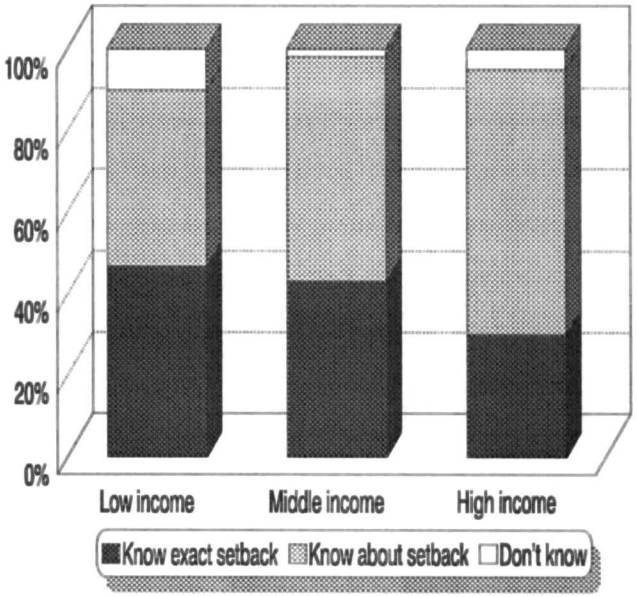

Figure 9-3: Respondents' awareness of setback regulations according to their income.

Also, another feasible explanation is related to the fact that the higher income respondents have larger lot sizes than the middle or lower income respondents. In this case, especially with lots that have more than one street boundary, the setback requirements would be more complicated, compared to the small size lots and those with one street boundary.

Concerning the preferred form of house, again there was no clearly notable correlation according to respondents' income. Nevertheless, there was only slight differentiation between higher and lower income residents regarding the attached house form, which was favoured slightly more by the higher income residents.

Also, the courtyard villa form was favoured slightly more by the middle income respondents. On the other hand, the villa form was preferred by a higher percentage of the higher and lower income respondents than the middle income ones, see Appendix-Table 9-17.

Furthermore, the lower and - to a lesser degree - the middle income respondents' modifications were more concerned with "providing large lots" and "no setback from overlooked side", than the higher income respondents, see Appendix-Table 9-18 and 9-19. This is of course related to the smaller lot area of the lower and middle income respondents, particularly the former, who would prefer to have larger lot and house sizes. The higher income respondents were more concerned with the setback requirements, particularly "setback from the back side only", which might provide another explanation for the slightly higher percentage of higher income respondents choosing the attached house form. Therefore, it is possible to conclude that there was no specific house form favoured more than the others by a certain income group of residents.

Regarding the first question-statement of "Does the respondent believe that the setback requirements have: decreased, increased or had no effect on the degree of overlooking?" no significant correlation could be found in this regard. However there was a notable correlation in the case of the second question-statement of "does the respondent believe that the attached house with a central yard is less exposed to overlooking than the house with setback and yards from all sides?" A larger proportion of the higher income respondents, than the lower income respondents, commented on this statement. This is probably related to the fact that a slightly higher proportion of them chose the attached house form, which was more open for comments, or probably because these respondents are more critical of their house design, than the middle or lower income respondents, see Appendix-Tables 9-20 and 9-21.

9-4-2 Education

The lower educated respondents showed slightly more awareness of the exact setback requirements than the middle - or the higher - educated ones, as illustrated by Figure 9-4. The reasons for this are very similar to the reasons for the correlation discussed earlier in respect of the respondents' income, where the only property the lower income respondents are likely to own is their own house. Therefore, they tend to remember the exact setback requirements very well, compared to the others, because many of the lower income respondents have a lower educational background. Also many of the higher income residents have a higher educational background, see Appendix-Table 9-22.

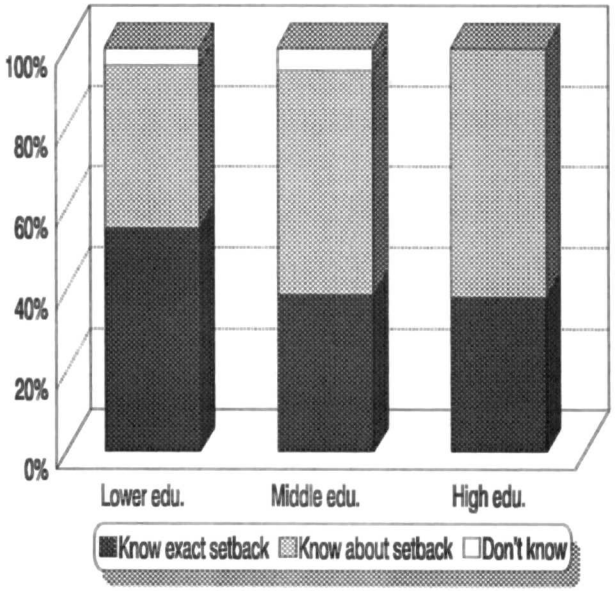

Figure 9-4: Percentage of respondents aware of setback regulations according to their level of education.

On the other hand, all the respondents who indicated that they did not know about setback requirements were of lower and middle educational backgrounds, and none of them was from a higher educational background. This has a lot to do with illiterate and very poorly educated respondents. Hence the chances of them knowing about the setback and planning regulations are significantly affected.

Looking at the respondents' answers to the question of "What are the reasons for building with setback and yards surrounding the house?" The higher and middle educated respondents were more concerned with reasons such as "providing gardens" and "providing spaces for outdoor activities", while the lower

educated were more concerned with "providing house ventilation", see Appendix-Table 9-23 and 9-24. This difference in responses is mainly related to lot size, because the proportion of higher and middle educated respondents owning larger lot houses is greater than for lower educated respondents. Therefore, as the respondents with smaller lot sizes can not afford to have more open spaces around their house, for gardens or outdoor activities, they seem to value this issue less, and emphasise other issues, compared to the respondents of larger lots, who seem to value this reason much more.

Regarding the preferred form of house, Figure 9-5 illustrates several points. To start with, the lower educated respondents prefer the villa form, while the middle educated prefer the courtyard villa form. As for the attached house form, it appears to be preferred by a slightly higher proportion of the middle and higher educated respondents than the lower educated ones, see Appendix-Table 9-25.

The higher preference of the villa form by the lower educated respondents is mainly due to the prosperity, modernity and luxury image they have of this form of house. The middle and higher educated respondents are less affected by this image, due to their greater education and awareness, and they tend to prefer the courtyard villa and the attached house forms. This can also be linked to the greater importance attached to privacy that the higher and middle educated respondents have shown in the previous chapter, compared to the lower educated ones, as the villa form is more exposed to overlooking than the attached one.

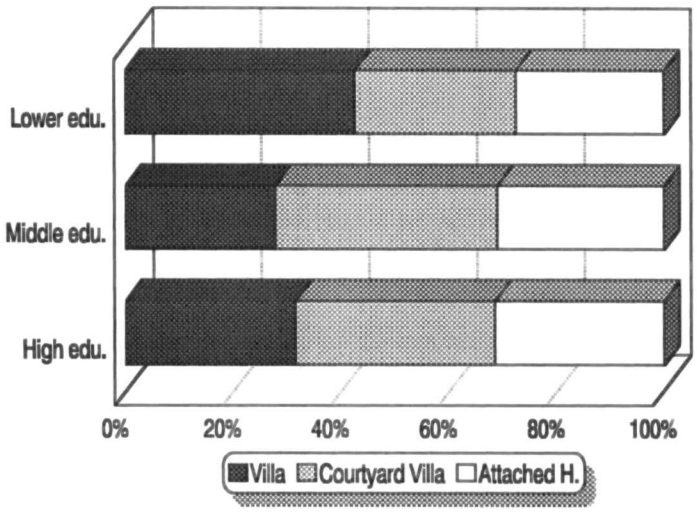

Figure 9-5: Respondents' preferred form of house according to their level of education.

Moreover, as regards respondents' comments on preferred house form, the lower educated respondents, and to a lesser degree the middle educated ones, were mainly concerned with "providing large lots". The higher educated ones were more concerned with points such as "no setback from the backyard" and "setback from two sides", see Appendix-Table 9-26 and 9-27.

When these points are linked to the previous discussion in this section and the respondents' income section, the reason for the respondents' points becomes clearer. As the lower educated respondents are mainly of low income and own smaller lots, they tend to emphasise this point more than the respondents owning larger lots. While for the point concerning "setback from two sides", as a higher proportion of the higher educated respondents preferred the attached form of house, and since this form is more open for comments and modifications regarding setback and yards, then this explains why the higher educated respondents were more concerned with this point than the lower educated ones.

Concerning the question-statement of "Does the respondent believe that the attached house with a central yard is less exposed to overlooking than the detached house from all sides?", the higher educated respondents tended to comment on this more than the others. Their concern was largely expressed with comments like "yes but it will have security problems", while the lower educated were more concerned with comments like "yes, but setback is better for ventilation", and both the middle and lower educated gave responses such as "yes, but with large lots", see Appendix-Table 9-28 and 9-29.

These concerns match the earlier explanation that respondents of low income and educational background placed more emphasis on the ventilation issue, may be because they thought that the attached house would have more limitations on house ventilation than the villa forms have. Also, perhaps that give another explanation why these respondents preferred the villa house form.

On the other hand, as a greater proportion of the higher educated respondents had a higher income, they were more worried about security problems in particular, probably because they tend to have more valuable items and furniture in their houses than the lower or middle income groups, or perhaps, as was mentioned in the previous chapter regarding their greater emphasis on privacy violation, they do not want other people to know what is going on in their house, and this applies more than to middle or lower educated and or lower income respondents, for reasons such as fear of neighbours' envy and grudging.

9-4-3 Respondents' Age

The respondents' awareness of the setback regulations has no clear relation to their age group, see Appendix-Table 9-30. The only exception is that all 7 respondents claiming not to know about the setback regulations were from the younger and middle age groups, and none was from the older group. This might be a minor indication that older respondents seem to know more about setback and planning regulations. This is also supported by the finding that a higher proportion of the older and younger respondents indicated the municipality regulations as the cause for their house form and its surrounding yards, and this proportion was lower among the middle-aged respondents, see Appendix-Tables 9-31 and 9-32.

Regarding the preferred form of house, the middle-aged respondents showed a greater preference for the attached house form than both the younger and older respondents. On the other hand, the villa form was preferred by more of the older respondents, while the courtyard villa was preferred by more of the middle aged and younger ones, see Figure 9-6 and Appendix-Table 9-33. This indicates that the younger and older generations are not so attracted to the attached house form. Furthermore, by looking at both villa forms, it is possible to

conclude that while the older generation preferred the villa form, the younger one preferred the courtyard villa.

There are two possible explanations for this. The first could be related to the lower perception of privacy, which is more likely in the case of the younger generation, as was discovered in the earlier chapter on "perception of privacy". The second can be related to the social image the villa has, particularly in the case of the older generation, who would tend to link this image with prosperity, luxury and progress, when comparing it with the traditional house, with its image of harder and tougher times, and its lack of modern sanitary and electricity services compared to the modern villa, with its modern sanitary, electricity and air conditioning services.

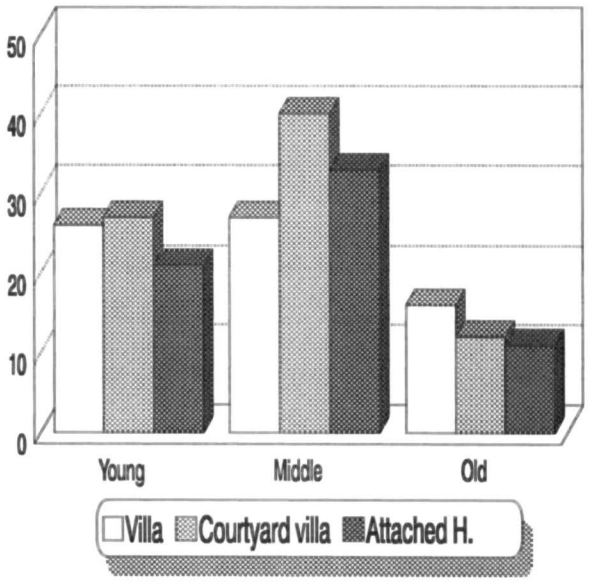

Figure 9-6: Percentage of respondents preferred form of house according to their age groups.

On the other hand, the younger respondents were more concerned than other respondents with modifications such as "two sides setback" and "building with no setback from the overlooked side", while the older respondents were concerned more with "setback from street only", see Appendix-Tables 9-34 and 9-35. This indicates that the main differentiation of these modifications was concerning setback requirements, rather than other modifications, such as "providing large lots" and others, which were very similar in all the three age groups.

As regards the two question-statements, most of the respondents who claimed that the setback requirements did not affect the degree of overlooking of the villa form, were of the younger and middle age groups, see Appendix-Table 9-

36, while for the second question-statement of "does the respondent believe that the attached house with a central yard is less exposed to overlooking than the detached house from all sides?" the younger respondents were the least likely to comment on that statement. Whereas 31% of both the older and middle-aged respondents made some comments, only 15% of the younger respondents commented, see Appendix-Table 9-37.

The reason for the younger respondents making fewer comments is most probably due to two points. The first is that they were the least enthusiastic or supportive of the attached house form, and since most of the comments were made about that form, this would explain their lower number of comments. The second point is that the younger respondents were less expert on this matter due to their age, compared to the middle and older respondents, thus they were less critical about that statement.

9-4-4 Respondents' Travel Background and Participation in the House Design

The respondents who had not stayed abroad, or who had stayed in fewer countries, showed more awareness of planning regulations responsible for their house form, than the respondents who had travelled to more countries. This is supported by another finding. Whereas 50% of the respondents who had not stayed abroad for a long time stated that they knew the exact setback requirements for their house, only 41% and 31% of the respondents who had stayed in 1-2 countries and in more than 2 countries, respectively, stated the same, see Appendix-Tables 9-38 to 9-40.

Also, regarding the preferred house form, as illustrated by Figure 9-7, both the respondents who had stayed abroad in more than 2 countries and the ones who had not stayed abroad preferred both the villa forms, while the respondents who

had stayed in 1-2 countries preferred the attached form of house, see Appendix-Table 9-41.

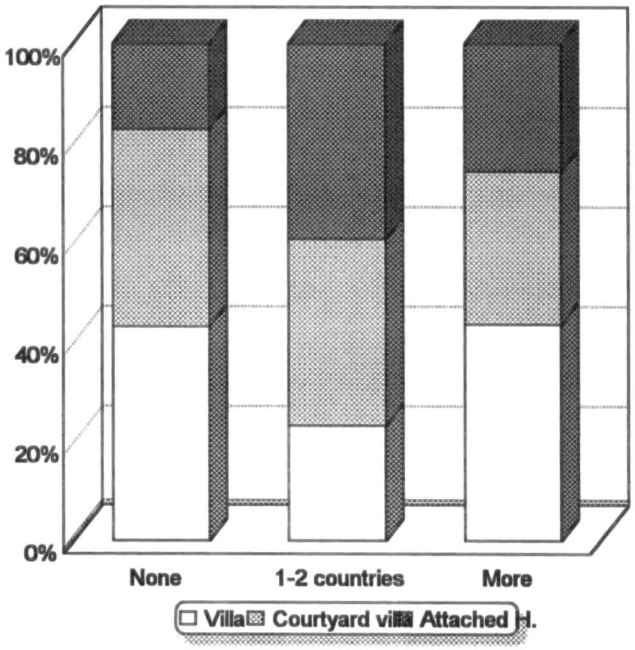

Figure 9-7: Respondents' preferred form of house according to their travelling and staying in foreign countries (in percentages).

There was no clear possible reason found to explain these tendencies, particularly the fact that the respondents who had not stayed abroad agreed with the views of the respondents who had stayed in more than 2 countries, while, on the other hand, these two groups contrasted with the views of respondents who had stayed in 1-2 countries. This correlation was not found in these groups' perceptions of privacy, where no clear tendency was found between staying abroad and perception of privacy. However, it is more reasonable to include this tendency here rather than ignoring it, as it might be possible that an other researcher could find a reasonable explanation that would benefit their research.

For the respondents who participated in the design of their houses, a clear and interesting correlation was found. These respondents showed more awareness of the planning and setback regulations, than the ones who had not participated in the house design, see Appendix-Tables 9-42 to 9-44. For example, while 46% of the respondents who had participated in the design indicated that they knew the exact setback regulations of their house, only 38% of the ones who had not participated in the design indicated the same. This finding sounds logical, as those respondents who had participated in the house design, came into close contact with the planning regulations affecting their house form and design, during the designing stage of their house. Therefore, they would have had a greater chance to

learn about these regulations, particularly concerning setback, compared to respondents who had not participated in the house design.

However, as Figure 9-8 illustrates, the preferred house form of these two groups of respondents showed no correlation in relation to their participation in the house design. The only differentiation found was a higher proportion of the respondents who had participated in the house design preferred the villa form, whereas the courtyard villa was preferred by the ones who had not participated in the design, see Appendix-Table 9-45.

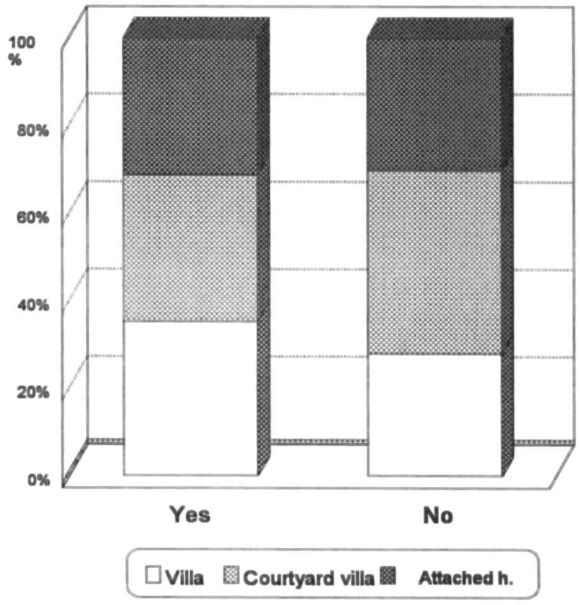

Figure 9-8: Respondents' preferred house form according to their participation in the house design (in percentage).

9- 5 House form Preference and Residents' Behavioural Aspect

9-5-1 Use of Yards and Degree of Overlooking

When looking at the preferred house form according to the respondents' use of their yards for family activities, it is found that the residents who use their overlooked yards for these activities strongly prefer both the villa forms, rather than the attached house, as illustrated by Table 9-2. On the other hand, no specific or significant preference of house form was found among the respondents using their not overlooked yards for those activities, except that a slightly higher proportion of them preferred the attached house, than the total average figure of 30.5%.

Table 9-2: Number of residents using their yards for female activities and their preferred form of house

House Form	Overlooked yards		Not overlooked yards	
	Women sitting	Family sitting	Women sitting	Family sitting
Villa	2	15	12	31
Courtyard Villa	2	14	11	34
Attached House	3	6	13	33
Total	7	35	36	98

This higher preference of the villa form by the first group of residents is related to their use of their overlooked yards for family activities. As the overlooking violation seems to be little problem for those respondents, or may be it is a very minor violation, they showed much higher preference for the villa forms than the total average ratio of all respondents. On the other hand, those respondents who care more about privacy and overlooking violation, or perhaps who have greater overlooking violation, showed a slightly higher preference for the attached house form.

9-5-2 Respondents' Perception of Privacy

In reference to the overlooking demonstration board, it is found that the respondents who perceived their privacy more strongly preferred the attached house form in the first degree, than the courtyard villa in the second degree, whereas the villa form is the least preferred by these respondents. The ones who perceived their privacy least, preferred exactly the opposite ranking of the three forms, see Appendix-Tables 9-46 to 9-48. For example, in the case of a resident

female overlooked by a neighbouring child, 54 respondents perceived this overlooking as 'very strong' or 'strong'. 14, 19 and 21 of these respondents preferred the villa, courtyard villa and the attached house form, respectively. Most of the other 15 cases of overlooking produced a similar outcome.

Certainly, this appears to be logical, as the attached form of house provides much more protection from overlooking, than either of the villa forms. On the other hand, the courtyard villa provides more protection than the villa. Therefore, the respondents who give more weight and importance to their privacy showed a higher preference for the attached house form, followed by the courtyard villa, while the villa form was the least preferred one.

9- 6 House Form Preference and Physical Aspects of the Dwelling

9-6-1 Lot Size

Regarding the respondents' awareness of the planning and setback regulations, it is found that the respondents of small lot areas are much more aware than the respondents of larger ones. Whereas, 60% of the respondents owning lots of less than 450 square metres stated that they knew the exact setback requirements, only 30-35% of the respondents owning larger lots knew the exact requirements.

Moreover, all 10 respondents who stated they did not know about these regulations were owners of middle and large size lots, and none of the 74 respondents owning lots of less than 450 square metres claimed the same, see Appendix-Tables 9-49 to 9-51. Also, the respondents with small lots managed to point out the municipality regulations as the factor responsible for their house and yard forms more frequently than the larger lots respondents. This is related to

more than one factor. Firstly, it is easier to understand the regulations relating to small size lots than the larger lots regulations. Secondly, a larger proportion of the small lot residents are of lower income, and this group showed more awareness of these regulations than the middle or higher income residents. Other factors also have some influence on this relationship, but to a lesser degree, such as educational background and the perception of privacy.

As regards the preferred form of house, the relationship here is a little complicated and interesting. It is found that the respondents of small and large lots showed a higher preference for both the villa forms than the respondents of middle lots, as can be see in Figure 9-9. The attached house, was preferred by a higher proportion of the middle size lots' respondents than the larger or the smaller ones, see Appendix-Table 9-52. Moreover, Figure 9-10 displays this relationship in the form of a chart drawing. The outcome of this relationship is two opposed curves, one for the attached house form and the other for the two villa forms.

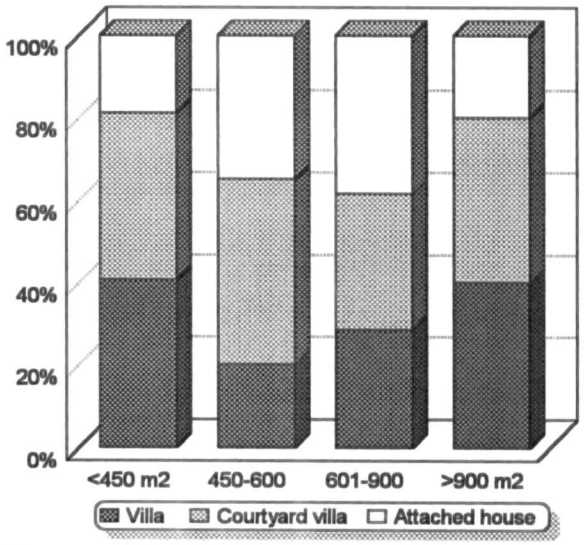

Figure 9-9: Respondents' preferred house form according to the lot area (in percentages).

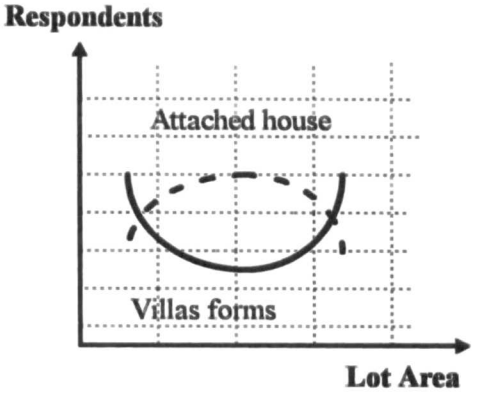

Figure 9-10: The relationship between lot area and the preferred house form.

As both figures indicate, the preference of the villa form is at its peak when the lot area is below 450

square meters, or over 900 square metres, and it is lowest when the lot area is between 601-900 square metres. On the other hand, it is exactly the opposite for the attached house form.

9-6-2 Houses with Extra Fences

Both the respondents groups - those who have extra fences in their houses and those who do not - showed a very similar degree of awareness of the planning and setback regulations, see Appendix-Tables 9-53 to 9-55. This means that building an extra fence in the house does not indicate that the respondent has more knowledge of these regulations, than those one who do not have an extra fence.

Regarding the preferred form of house, the respondents of houses with extra fences showed greater preference for both the villa forms, and less for the attached one, as can be seen from Figure 9-11. The respondents who do not have extra fences indicated a slightly higher degree of preference for the attached house, compared to both the villa forms. On the other hand, these latter respondents also showed much greater preference for the courtyard villa compared to the villa form, see Appendix-Table 9-56.

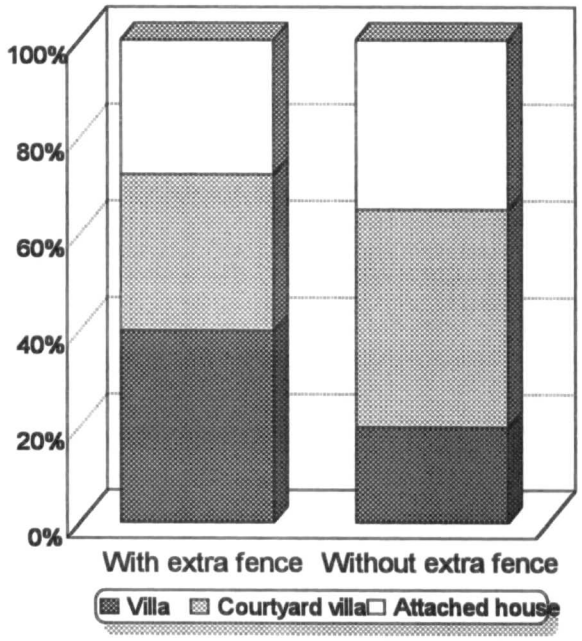

Figure 9-11: Respondents' preferred house form according to the existence of an extra fence in the house (in percentage)

As the respondents who have built extra fences have solved most of the overlooking problems in their yards, they most probably feel more relaxed about this problem. Therefore, it seems understandable that many of these respondents

would have no objection to this form, and would prefer it to the attached form. For many of them, the problem of overlooking violation no larger exists, with the building of extra fences. The respondents of houses without extra fences, are faced with the overlooking problem almost every day, but they tend to show a greater preference for the attached house form, which would have less overlooking and fewer privacy violation problems.

9-6-3 Size of Urban Centre

It is found that with increase in the size of urban centre, there is a slight increase in the proportion of respondents pointing out municipality regulations as the factor affecting their house and yards forms, as can be seen from Figure 9-12. On the other hand, the respondents from the largest urban centre (Riyadh) showed less knowledge of the exact setback regulations applied to their houses than the respondents of middle and small centres (Tabuk and Haqil), see Figure 9-12 and Appendix-Tables 9-57 to 9-59.

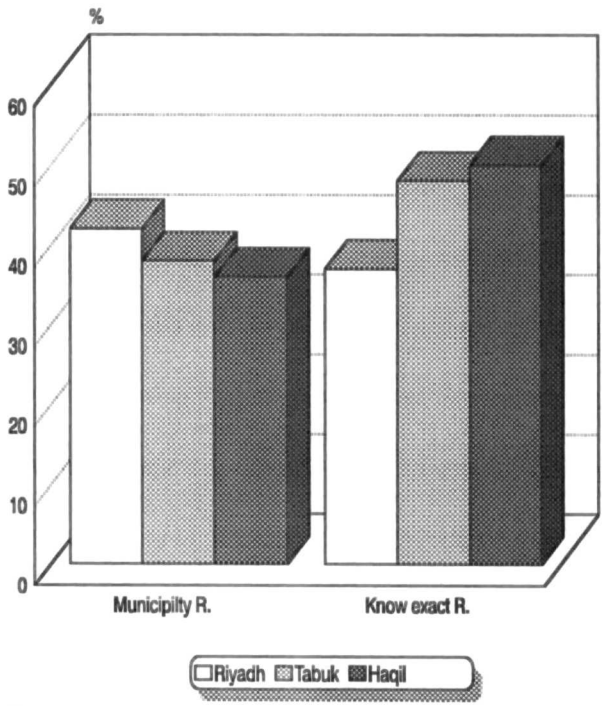

Figure 9-12: Respondents aware of the planning and setback regulations (in percentages).

Comparing these two correlations, it is most likely that the respondents from small urban centres have less knowledge of the fact that these regulations are the factors responsible for these house and yards forms. Instead, they placed more emphasis on other reasons for these forms, such as "house ventilation", "providing gardens" and "providing spaces for outdoor activities". When these respondents from small urban centres were asked specifically about the setback

requirements of their houses, they showed a higher awareness regarding these exact requirements. However, the latter finding can be linked to other reasons which helped these respondents to memorise the exact setback requirements, such as smaller lot sizes and lower income, rather than greater awareness of the planning and setback regulations compared to the respondents from larger centres.

It is not possible to indicate precisely the correct explanation for this tendency from the available data from this research. Hence, both explanations seem valid, although the former explanation is more likely for the reasons stated above, as well as for the findings in the next section, as this correlation is investigated from the neighbourhood aspect. The respondents of Haqil suburb (al-Dhaharah) also showed the same low degree of indication of municipality requirements as the factor behind the house and yards forms, which will be investigated further in the following section.

As far as the preferred house form is concerned, another surprising finding was discovered. Figure 9-13 illustrates that the respondents of small urban centres showed the least desire for the attached house form, followed by the large urban respondents then the middle urban ones. On the other hand, in total, the majority of respondents of the three centres preferred the villa form in both its types, to the attached house.

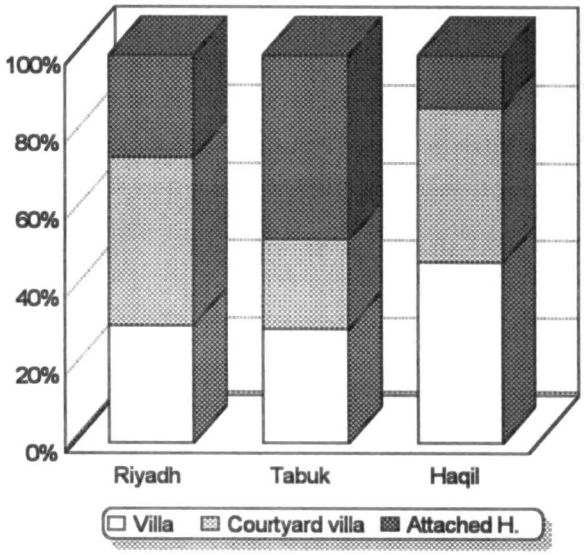

Figure 9-13: Respondents' preferred house form according to their city of residence (in percentage).

Another finding - less surprising this time - is that the respondents of Riyadh preferred the courtyard villa or the villa, while the respondents of the other two centres demonstrated the opposite preference, see Appendix-Table 9-

60. This indicates that the correlation between the size of city and the preference of house form is not a straightforward one, and there are no specific grounds that can be generalised about other cities in the country.

However, it is possible to state here that the size of urban centre has no definite relation to the proportions preferring a particular form of house. Nonetheless, it was found that both villa forms are preferred to the attached house by the majority of respondents in all three cities, although this majority was different from one city to another.

Regarding the respondents' modifications to their preferred form of house, the respondents of Riyadh were more concerned with setback issues, while the respondents of both Tabuk and Haqil were more concerned with the issues of "providing large lots", and, in Tabuk, "building with setback from two sides only", see Appendix-Tables 9-61 and 9-62.

The reasons for the emphasis on providing large lots by Haqil and Tabuk respondents is related to the fact that a very large proportion of them live in small lot houses. As this appears to cause major problems or dissatisfaction, they tried to state their complaints on this issue in the questionnaire survey. For the other two issues, as a larger proportion of Riyadh and Tabuk respondents preferred the attached form of house, compared to respondents from Haqil, they showed more modifications regarding the setback requirements applied to this house form, since the form is more open to modification than the villa forms.

As regards the question-statements, Haqil respondents showed the highest percentage of comments to the statement-question "Does the respondent believe that the attached house with a central yard is less exposed to overlooking than the house with setback and yards from all sides?" Their responses on the issue were largely that it was less exposed to overlooking "yes, but that setback is better for ventilation", see Appendix-Tables 9-63 and 9-65. This seems to be reasonable

since they preferred the villa form more than the respondents from the other two cities. Therefore, these respondents chose to indicate their reasoning for preferring the villa form, rather than the attached one, although the villa has a lower degree of privacy or overlooking violation.

9-6-4 Respondents' Suburb of Residence

The percentage of respondents aware of the planning and setback regulations varies from one suburb to all other. For example, as Figure 9-14 illustrates, while the respondents of al-Shifa, al-Dhaharah and al-Rayan showed the lowest rate of indicating the municipality regulations as the cause for their house and yards forms, the respondents of al-Erija and al-Nahdha showed the highest rate for pointing out these regulations. Also, the respondents of all these suburbs showed very similar ranking as regards their knowledge of the exact setback requirements, see Appendix-Table 9-65 to 9-67.

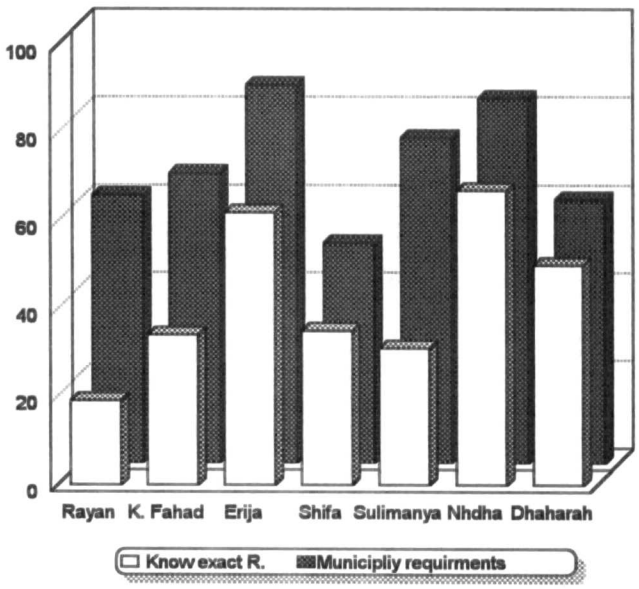

Figure 9-14: The percentage of respondents with knowledge of the planning and setback requirements of their houses.

The main point that can be found in these relations concerns the respondents of al-Dhaharah (Haqil). These respondents showed less knowledge of the planning regulations as the factor affecting their house form. This supports the earlier remarks mentioned in the previous section, regarding the lower awareness of the respondents in small cities.

Concerning the preferred form of house, the results produced more variation and interesting findings than the question concerning regulation awareness. As can be seen from Figure 9-15, about 6 out of every 10 respondents of al-Shifa and al-Sulimanya preferred the attached house form. On the other hand, approximately only 1 out of every 10 respondents of King Fahad and al-Dhaharah preferred the attached form of house. No respondents in al-Erija preferred the attached house, see Appendix-Table 9-68.

There are several reasons for these results. Starting with al-Erija, as the majority of the houses there are built with setback only from the front and the back sides, the respondents feel very dissatisfied with this type of house form. This dissatisfaction was reflected in their preferred house form, where all of them preferred the two villa forms, and none of them chose the attached one.

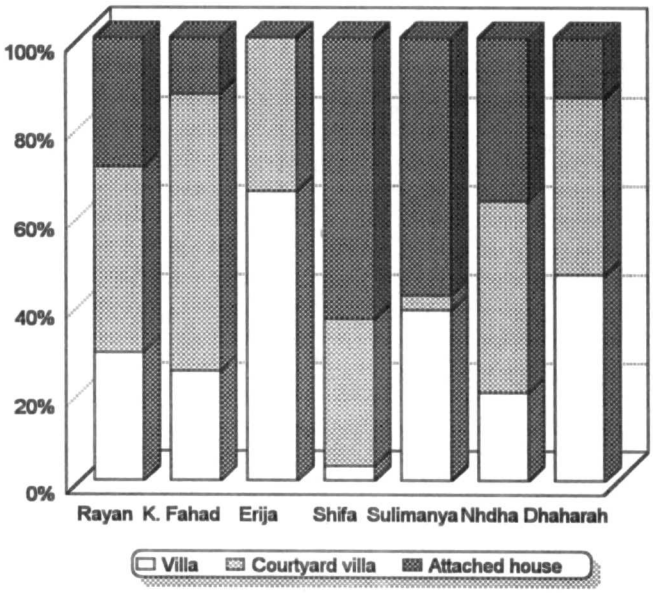

Figure 9-15: Respondents' preferred house form according to their suburb of residence (in percentages).

However, it is worthwhile mentioning some the al-Erija respondents' comments taken during the questionnaire, regarding the setback regulations and the house form adopted in this suburb. Some respondents (such as questionnaire No. 20) complained about the sound transference between his sitting room and the attached room of his adjoining neighbour. He stated that:

> "building with no setback made it possible for you to hear the loud voices or sounds coming from the attached room of the neighbouring house, such as slamming the door or children shouting."

Most of the respondents were dissatisfied with buildings with no side setbacks because of security reasons. One respondent (questionnaire No. 62) stated that:

> "building with no setback from two sides of the lot made all the houses on one side of the block continuously attached. This made it possible for a person or a thief to jump from one roof to the other, from the first house in the block to the last one. "

This made residents feel that their houses were very exposed to theft and insecure from the roof, and led many of them to place a specially designed and very strong door leading to the roof. This, in turn, made the residents feel very worried, both psychologically and practically, about the security issue of their houses, in a conservative society that strongly values family privacy and safety.

To illustrate this problem, one respondent (No. 62) mentioned the following very interesting story. He stated that:

> "one day a monkey escaped from its cage in one of the neighbours' houses, and the residents were not able to catch the monkey, as it kept jumping from one roof to the other. The fire brigade were called upon twice to catch the monkey, and after long and exhausting efforts they also were not able to catch it. The monkey stayed free on the houses' roofs for two weeks, during which time it caused a lot of worries and panic to the residents of the block, as it jumped on the house yards late at night looking for food, pulling down washing and scaring children. Only after two weeks was one resident able to catch it by placing an animal trap for it, and only managed to catch it that way."

Many respondents indicated that the land price in al-Erija was very low compared to other suburbs. As one respondent (No. 111) put it:

> "you can buy a completely built house here (meaning in al-Erija) for 250,000 Saudi Riyals, and buying vacant land would not cost you more than 50,000 SR."

Comparing these figures to other suburbs would mean that a lot of land in al-Erija would be about half the price of a lot of equal size in al-Shifa, and 15-30% of the price in King Fahad or al-Rayan, at 1994 prices.

As mentioned and discussed in chapter 6, the planning regulations adopted for al-Erija were different from those for other suburbs as a different setback policy was adopted. The setback requirements were; 4 metres setback from the front, 6 metres setback from the back, and the building HAD to be built on the boundary line of both sides of the lot. Later on, and after a large number of residents' complaints, the municipality of al-Erija changed this policy and applied a new policy. This new policy is 1/5 of any street boundary setback, and one metre minimum setback from the neighbours' sides. This allowed the new houses to be built with setback from all sides (the villa form), which is what all the residents did (according to one of the municipality officials and some of the interviewed residents).

Nevertheless, almost all the interviewed residents indicated their dissatisfaction with the old setback policy and the house form it enforced. One of the respondents (No. 142) stated the following reasons for his dissatisfaction:

> - 4 metres at the front is not enough for building an extension for a sitting room and a bathroom.
>
> - this 4 metres yard is not even enough for car parking space, thus it is wasted space.
>
> - on the other side, the 6 metres setback in the backyard is a large one (6 X 20 metres = 120 square metres), considering the small size of the lot (20 X 20 metres = 400 square metres). In particularly it is not suitable to build an extension for a sitting room, as it is far from the house entrance, and you need to lead your guests through the interior of the house in order to reach it, it is also not suitable for family activities as it is easily overlooked by neighbours at the back.
>
> - it would be much better if the municipality could switch these setback requirements, so the front setback is 6 metres and the back one is 4 metres.

However, only 2 respondents out of the 29 interviewed in al-Erija made some modifications to their preferred house form. The first recommended the

provision of larger lots, while the second recommended no setback requirement for the backyard only, see Appendix-Tables 9-69 and 9-70.

Going back to the preferred form of house, the other finding is that a great majority of the respondents of King Fahad and al-Dhaharah prefer both the villa forms. Only 4 respondents from each suburb chose the attached house form, out of 32 and 30 respondents, respectively. Furthermore, a much larger number of King Fahad respondents preferred the courtyard villa compared to the al-Dhaharah respondents. This is probably related to the lot size. As most of the latter lots are of small size, al-Dhaharah residents believe there is no spare space for the courtyard, particularly after allowing for the setback requirements which could incorporate up to 44% of the lot area.

In the case of King Fahad suburb, the lots are much larger than the ones in al-Dhaharah. Therefore, the residents could easily locate some space for the courtyard. However, there could also be other reasons involved in this, such as the respondents' response to the Andalucian and the traditional Arab courtyard house image that they might have seen abroad or on TV, particularly the higher income and well-educated respondents.

On the other hand, approximately 60% of al-Sulimanya and al-Shifa respondents preferred the attached form of house. No specific or clear reason was found to explain such preference, though almost all these respondents' modifications were concerning setback regulations. These proposed modifications included "setback from two sides only", "no setback from the back side only" and "building with no setback from the overlooked side". These al-Sulimanya and al-Shifa respondents formed the majority of the total number of proposed modifications for all the surveyed suburbs, see Appendix-Tables 9-71 and 9-72. The reason for this high number of modifications is largely linked to the respondents' preference fro the attached house, which is more open and flexible for modification than the other two forms.

Regarding the question-statements, it was found that the suburbs where most respondents preferred both the villa forms were also the ones where the largest number of comments was made. This was as an indication and defence of their reasoning behind preferring both the villa forms to the attached one. While the respondents of King Fahad and al-Erija were more concerned with the security issue, the respondents of al-Dhaharah were largely concerned with house ventilation, and secondly with "yes, but with large lots", see Appendix-Tables 9-73 and 9-74.

While the reason behind this comment of al-Dhaharah respondents, concerning lot size, is because of the large number of small lot areas in that suburb, the reason behind the first comment is related mainly to Haqil's geographical location. This location is different from the other two cities due to its cooler climate in summer and the cool sea breeze the houses can catch on the hot summer days. This location and its climate made these respondents prefer both the villa forms to the attached one, although they all agreed with the question-statement that the attached house with a central yard is less exposed to overlooking than the detached house from all sides.

However, they preferred to put up with the overlooking problems of the villa rather than living in the attached form of house, which they believe to be less open to natural ventilation, as one respondent (No. 18) put it :

> "yes the attached house is more protected from neighbours' overlooking than the detached house, but setback is better for ventilation."

Another interesting comment made by one of the al-Dhaharah respondents who preferred the villa form, nicely illustrates the significant drama of the situation. This respondent (No. 22) stated that:

> "yes, the neighbours could overlook each others' yards and houses, but one should follow the common norms and principles, and should respect his neighbour's privacy (*hurmat jaruh*)"

Although this respondent was illiterate and 20-30 years old, he was able to express his desires and thoughts quite clearly and that was not seen from many of the highly educated respondents.

9-7 Summary of Findings

- The majority of respondents (69%) managed to indicate the municipality regulations as responsible for shaping their houses and yards forms.

- The vast majority of respondents (97%) indicated that they knew about the setback regulations applied to their houses, and just less then half of these respondents managed to state the exact requirements.

- The respondents' preferred form of house was almost equally divided between the three shown forms, although the attached house was chosen by slightly fewer people (65 respondents), and the villa was the most popular (79 respondents) followed closely by the courtyard villa (69 respondents). If the two forms of villa are combined together, since they both have setback and yards from all sides, then the results would be 69.5% of the respondents preferring the villa forms, and 30.5% preferring the attached house.

- Almost all the respondents agreed that the villa form of house is more exposed to neighbours overlooking than the attached house. Furthermore, 203 respondents out of the 213 surveyed in this research believed that the setback regulations have increased the degree of overlooking between neighbouring villas.

- All the 213 respondents agreed that the attached house with a central yard is less exposed to overlooking than the house with setback and yards from all sides. Some of them (20%) added their comments on this statement, indicating their reasons for choosing the villa form while agreeing with this fact. These comments

showed that the reasons for preferring the villa form to the attached house were mainly for; providing better natural ventilation (20 respondents), having less security problems (15 respondents), the out-looking and orientation of the villa (15).

- The primary result and meaning of the above finding is that the villa form is preferred by twice the number of respondents, than the attached house form, regardless of the villa's disadvantages in terms of its higher degree of privacy violation, which approves the main hypothesis of this research.

- The lower income respondents showed more awareness of the planning regulations than the middle and higher income ones. Also, these respondents indicated slightly less preference for the attached house form, and much more preference for the villa form.

- The attached house was, also, slightly less preferred by the lower educated respondents, who generally preferred the villa form. While the middle and higher educated respondents preferred more the courtyard villa, none of these groups preferred the attached house to the other forms.

- Regarding age, the degree of awareness of the planning regulations was almost the same in all three age groups. On the other hand, the middle-aged respondents showed a higher preference for the attached house form, than the older or younger respondents. The villa form was the most preferred by the older respondents, while the younger ones preferred the villa and courtyard villa forms. This indicates that both the younger and older generations are not supportive of the attached house form.

- The respondents participating in the house design showed much higher awareness of the planning regulations, than the ones who did not participate.

However, there was no particular preferred house form according to the participation in house design.

- It is found that the respondents who used their overlooked yards for family activities rarely preferred the attached house, and usually preferred the villa form. The respondents using their not overlooked yards for the same activities often preferred the attached house form.

- Respondents perceiving their privacy strongly were found to prefer, the attached house for rather than the villa form, while the respondents perceiving their privacy less strongly gave the opposite responses.

- The degree of planning regulations awareness among the respondents of small lots is much greater than the awareness of respondents of large and medium lots. On the other hand, the attached house form is found to be preferred more often by the respondents of medium lots (600-901m2), while the villa form was chosen most by the respondents of small and large lots.

- No relation was found between the respondents building extra fences and their awareness of planning regulations. The respondents of houses with extra fences are found to prefer the villa forms, and reject the attached form to a greater extent, than the respondents of houses without extra fences who showed much more preference for the attached house.

- The respondents of small cities showed less awareness of planning regulations than respondents of medium and large cities. Also, these respondents, and to a lesser degree the large city respondents, showed much less desire for the attached house form, whereas the medium city residents showed the most preference for the attached house form.

- The preferred form of house is found to vary considerably between the seven surveyed suburbs. Some suburbs' respondents preferred the attached house (al-Shifa and al-Sulimanya), while others preferred the villa form (al-Erija and al-Dhaharah) and others the courtyard villa (King Fahad, al-Nahdha and al-Rayan). There are several reasons involved in this result, which were mainly discussed and analysed in this chapter.

- One important factor, which played a major role in the results, was the different planning regulations policy adopted in al-Erija. The vast majority of this suburbs' respondents stated their disapproval of the policy, and the house form resulting from it. Their main concerns were the security problem, sound transfer between houses, small lot area, large unused backyard and small unused front yard. Due to the residents' complaints and dissatisfaction, this policy has recently been changed to a policy close to the standard one followed in all the other six suburbs,.

Part Three

10 -

CONCLUSION

Page

10-1 Conclusion

The findings of many researches in Muslim countries indicate that privacy is regarded very important to local people and is deeply rooted in their culture. The role Islam perform in forming the Muslims' perception of privacy is very important. However, it is found that this role is often undervalued in the design of human settlement and house in Saudi Arabia, as well as in the Arab and Muslim world in general. For instant, when the house form does not match the desired degree of privacy, its residents would then modify their behaviour or the physical aspects of the house form and design. Also, if the achieved privacy is more than it is desired, that would lead to feelings of isolation and loneliness. Therefore, just as too little privacy is a problem, so is too much privacy. Hence, a house form should produce a balanced degree of privacy, equal to its residents' needs and desired, not more than this and not less.

In the contemporary culture of Saudi Arabia, privacy is considered to be a prerequisite when one is considering a house design. The right of an individual to have his/her privacy protected in his/her dwelling life is an Islamic social requirements and right, which tend to be generally not reflected in the present planning regulations of the areas of villa house type.

In the beginning (the early 1950s), the villa house form was adopted first by municipalities, and later by both the municipalities and the public. The reasons for this adoption did not differ significantly between the municipalities and the public. The municipalities' adoption of the villa as the standard house form for the Saudi Arabian family was originally motivated by the general concept of modernising Saudi Arabia, and making the life-style of its people

more comfortable and luxurious. The villa at that time was perceived as a modern commodity that could be imported and used along with other modern commodities that were imported like automobiles, aeroplanes, telephones etc..

At the early stage, in the 1950s, the adoption of the villa was undertaken by the municipal authorities only, as the public were not generally aware of the villa, because the traditional attached house was almost the only one known to them at that time. In order to bring in and spread the use of the villa house form, the municipal authorities standardised this form through planning regulations in all the low-density single-family planned areas. This standardisation and adoption took its early form in al-Malaz suburb in Riyadh (which was established in 1952), and then it was adopted officially and firmly in all newly planned parts of Riyadh, as well as every city and town in Saudi Arabia (through the Municipality Circular of 1960).

The negative consequences of these planning regulations and of the adopted house form were not seen at that time, neither by the municipality authorities nor by the public. It was not for several years that the public started to realise the disadvantages of living in the villa house form. Residents of villas began to discover what cultural problems the use of this house form brought to them. Utilising the yards of the villa by the family members meant that all their activities in the yards are easily exposed to adjoining neighbours observation overlooking these residents' yards. Residents found themselves not being able to leave their windows open while the room was in use, fearing their privacy being violated by neighbours' seeing through the open windows.

From the late 1970s - early 1980s the awareness of this problem started to be recognised, and began to be discussed and analysed in architecture schools, among municipalities officials as well as researchers. The early example of these efforts focused on defining the problem itself and what were

its causes. Several studies and researches had touched this task, and managed to identify and analysis it in different degrees of depth. Examples of this are found in the work of al-Hathloul (1981), al-Shtwi (1982), Faden (1983) and others, and later on in the work of al- Shareef (1986 and 1988) Bahammam (1987 and 1992) al-Saati (1987) al-Hemaidi (1991).

Also, some planning schemes adopted different house forms and policies of planning regulations, which aimed to provide the Saudi Arabian family with a more acceptable and suitable house form that respected the family and cultures values of its residents. These attempts include housing projects built by Government agencies for housing their employees, such as the Ministry of Foreign Affairs Staff Housing and the National Guard Staff Housing both in Riyadh. Also, there are some planning regulation schemes which aimed at providing solutions for the privacy problem, such as the schemes adopted by Riyadh's municipality. The planning regulations scheme adopted in al-Erija suburb, prepared by SCET International in 1981, is an example, as well as the formula governing the overlooking between neighbours' windows and newly built houses yards, also prepared by SCET International.

The methods adopted in these Government housing projects for solving the privacy violation problems are considered to have had a reasonable degrees of success, or at least to have managed to decrease the effects or degree of violation of privacy between houses. But, however, they remain at a small scale development and are not suitable in application to the larger scale of public houses, as it present a finished product rather than a service, or guidelines and regulations.

The attempts at planning regulations schemes proposed by SCET International in Riyadh were found to be of no success in this research. Whereas the "formula" controlling overlooking never got to the implementation

stage, the planning regulations schemes adopted in al-Erija suburb had to be modified after a short period of time due to residents dissatisfaction (refer to Chapter 2 for detailed reasons).

Of course, there is a wider political, economic, social, and educational role that participation can play in developing a very positive and significant role to find a solution to the problem of privacy violation, or at least to reduce the degree and extent of this problem.

The core values in the Saudi Arabian society provides for rights of individuals and house privacy. These values can be brought about to and included in the social and educational aspects. For example, educational programmes could be arranged to stress these values in the educational system. Also, community programmes could be arranged with the co-operation of various media outlets in order to remind and discuss with individuals these values, so a better and more understanding and harmonised residential community could be achieved.

The political aspect, also has a very important role to play. The Government Officials' contribution to solve the privacy violation problem is highly regarded and needed. The encouragement and adoption of new plans and programmes would certainly give the initiative effort to bring in more attention to this problem. The decision makers in Saudi Arabia are highly looked upon and respected by individuals. Therefore, when such a programme or certain behaviour is adopted by these decision makers, or their government bodies, this would most certainly have a significant contribution in encouraging the individuals to follow on, and subsequently ease and accelerate the implementation effort needed to carry on this programme or decision.

At the moment of writing this research, there are still some attempts, planning schemes and researches undertaking the task of finding a solution for the important problem of privacy violation, and these will continue in the future. Some of these attempts might fail in the beginning and would not pass the drawing board stage, some might fail before reaching the implementation stage, ome might be found not successful during or after implementation, and some ight work out well and be successful. But the question here is how long will it ke until a solution for this problem is found, how much effort and financial costs ill it consume to achieve that end.

The in-put of this research is not to claim that it has found the perfect olution for the privacy problem, rather it aims to provide a moment for catching reath, and taking a good look back, in order to review, calmly and subjectively the experience of Saudi Arabian house in regards to the privacy problem. The findings of this research proved that some of the assumptions that were taken as granted were not accurate.

The assumption that the solution for the privacy problem lies in replacing the villa form completely with semi-attached house (al-Erija suburb case) proved to be not successful. Also, the assumption that residents would prefer the attached house form to the villa proved to be not accurate, as the majority of residents surveyed by this research indicated that they prefer to live in a villa house form.

The research findings indicated that the privacy issue is perceived as important by the residents, where the evidence was quite clear either in the

residents' significantly lower use of overlooked yards compared to the not overlooked ones, particularly for family activities that involve women, or through the construction of extra fences around the house yards, blocking the view to and from these yards. Also, the residents showed high level of awareness that the villa form of house is more exposed to neighbours overlooking than the attached house form (203 respondents out of the 213 surveyed believed that the setback regulations have increased the degree of overlooking between neighbouring villas.

However, the dilemma is that despite of the effects of privacy violation and its importance, the residents still prefer to live in a villa house form and put-up with its privacy violation, rather than living in an attached house, even though the attached house would provide more protection from privacy violation.

Therefore, the final conclusion of this research is to indicate that what is needed, in order to solve the problem of privacy violation, is actually keeping the "popular" house form of the villa, and focusing the efforts in reducing the degree of privacy violation between them, instead of looking for different house forms that are most likely to be less popular and might be rejected by the residents.

Focusing the efforts on this theme would save a considerable time and costs, and concentrate the efforts on searching and findings ways and methods to reduce the degree of overlooking between adjoining villas. This would make the villa more suitable for the Saudi Arabian culture and values, and would certainly lead to the increase in efficient use of the villa by the Saudi Arabian family. The following section contains broad and general suggestions of methods or points through which a villa with greater privacy could be achieved.

10- 2 Recommendations and Suggestions

- Modifying the planning regulations of the villa to allow the opening of first floor windows on one or two sides of the house only, in order to decrease the number of overlooking violation sources to neighbouring houses.

- Making the planning regulations of the villa more flexible, by adopting different sets of setback and floor space ratio for different sizes of lots. That would be more appropriate for small lot area, in order to make it possible for the residents to provide more open spaces for the important yards in their houses, and less space for the unimportant yards.

- Modify the land sub-division regulations to decrease the number of villas that can overlook each other.

- Adopting more suitable land-use policies in order to decrease the possibilities of overlooking of medium-rise and high-rise buildings onto adjoining villas.

- Developing more flexible planning regulations that allow residents to build their houses without setback if they wish to do so (particularly that one third of residents that indicated they would build their house without setback from one side at least), as this would decrease the overlooking violation from such houses to adjoining villas.

- Modify the planning regulations to allow the building of villas without setback from the back of the lot, which would save this amount of space for other more useful yards, also this would lead to a decrease in the degree of overlooking violation on adjoining neighbours caused by the rear-side windows.

- Reviving and modifying the overlooking "formula" presented by SCET International for the villa planning regulations, but limiting its use for the windows of the one or the two sides of the villa, in relation to the first recommendation.

- Increasing the participation of the architectural offices responsible for designing and supervising the construction of the villa in compliance with planning regulations, particularly with regard to the implementation of limiting the opening to one or two sides of the house, and also in regard to the overlooking "formula". This would reduce the burden of work and duties on the municipality officers, and involve the private sector more in the supervising and applying the planning regulations on the houses during the construction works.

10- 3 Suggestion for Future Research

- Reviving and modernising the Islamic and traditional planning principles and process of supervising and controlling the building of the physical environment.

- Establishing a new form of planning law and court to be in charge of setting the regulation and solving disputes regarding planning control matters of new and existing development. This could be based on the

Sharia'h laws governing the building process as well as benefiting from the Western planning laws and courts experience and knowledge.

- Increasing the participation of homeowners in the building process of their residential areas, as well as their participation in managing and financing some of the planning issues and services involving and affecting their residential areas. This would lead to an increase in the efficiency of the planning process and costs.

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Appendix A

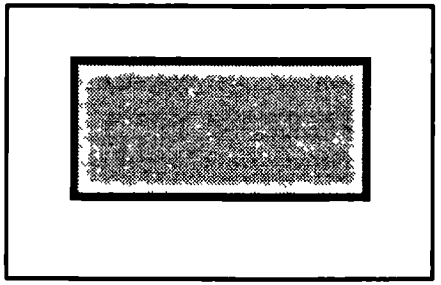
The English Version of the Questionnaire

City: ----------
Area: ----------
Date: ----------
Time: ----------
Surveyor: ----------
Q. No.: ----------

The questions of this questionnaire is bout the house and its characteristics, and the opinion of residents' satisfaction and use of some specific parts of this house. The questionnaire consists of four parts, and it is accepted that 1 - 1 1/2 hour is needed to fill in the questionnaire.

A : Background data of the lot and the dwelling:

1. A sketch of the house site plan and its surrounding neighbours, with indications of measurements, lot dimensions and directions.



2. a) Is there an extra structure on the top of the concrete fence of the house?
1. Yes 2. No

If No go to part B. If Yes, answer the following questions

3. When was this extra structure erected? [*Fill in the space*]
------- years ago

4. Who took the decision to erect this extra structure? [*Fill in the space*]
----

5. What are the reasons for erecting this extra structure? [*Fill in the response*]
1) ----------
----
2) ----------
----
3) ----------

B: The use of spaces and windows by residents in the dwelling:

The following questions concern the use of yards by residents, and the overlooking of the dwelling yards by neighbours, ask the resident kindly to answer the following group of questions for each yards, starting with the main yard:

Group A.

1. The ——— yard (the main yard) *[fill in the yard orientation, i.e. north, south,..]*

2. How often and for what activities are the residents using this yard?
[insert the activity and the members of the family involve in this activity, and how often are they using this yard by using and inserting the number in front of the below scale]

1. Always 2. Often 3. Sometimes 4 Rarely

Activity	Involves	Summer		Winter		Notes
		Day	Night	Day	Night	
1.						
2.						
3.						
4.						

3. a) Does the resident believes that this yard is exposed to neighbours overlooking?
1. Yes 2. No *[circle one]*
b) If Yes, to which neighbour, and from where is he overlooking?
[orientation of neighbour: North, south, etc. and from where is the neighbour overlooking: first floor windows, roof top, etc..]

---
c) If No, why does he believe it is not overlooked?
---

4. To the best knowledge of the resident, how often did a person in any of these overlooking neighbouring dwellings overlooked this yard lately?
[using the below scale, circle the number in front of the chosen scale]
1. Always 2. Often 3. Sometimes 4. Rarely 5. Never

Group B.

1. The ——— yard *[Fill in the yard orientation, i.e. north, south,...]*

[insert the activity and the members of the family involve in this activity, and how often are they using this yard by using and inserting the number in front of the below scale]

1. Always 2. Often 3. Sometimes 4 Rarely 5. Never

Activity	Involves	Summer		Winter		Notes
		Day	Night	Day	Night	
1.						
2.						
3.						
4.						

3. a) Does the resident believes that this yard is exposed to neighbours overlooking?
1. Yes 2. No *[circle one]*
b) If Yes, to which neighbour, and from where is he overlooking?
[orientation of neighbour: North, south, etc. and from where is the neighbour overlooking: first floor windows, roof top, etc..]

---
c) If No, why does he believe it is not overlooked?
---

4. To the best knowledge of the resident, how often did a person in any of these overlooking neighbouring dwellings overlooked this yard lately?
[using the below scale, circle the number in front of the chosen scale]
1. Always 2. Often 3. Sometimes 4. Rarely 5. Never

Group C.

1. The ——— yard *[Fill in the yard orientation, i.e. north, south,...]*

2. How often and for what activities are the residents using this yard?
[insert the activity and the members of the family involve in this activity]

1. Always 2. Often 3. Sometimes 4 Rarely 5. Never

Activity	Involves	Summer		Winter		Notes
		Day	Night	Day	Night	
1.						
2.						
3.						
4.						

b) If Yes, to which neighbour, and from where is he overlooking?

[*orientation of neighbour: North, south, etc. and from where is the neighbour overlooking: first floor windows, roof top, etc..*]

---

c) If No, why does he believe it is not overlooked?

---

4. To the best knowledge of the resident, how often did a person in any of these overlooking neighbouring dwellings overlooked this yard lately?

[using the below scale, circle the number in front of the chosen scale]

1. Always 2. Often 3. Sometimes 4. Rarely 5. Never

Group D.

1. The ——— yard [*Fill in the yard orientation, i.e. north, south,...*]

2. How often and for what activities are the residents using this yard?

[*insert the activity and the members of the family involve in this activity*]

1. Always 2. Often 3. Sometimes 4. Rarely 5. Never

Activity	Involves	Summer		Winter		Notes
		Day	Night	Day	Night	
1.						
2.						
3.						
4.						

3. a) Does the resident believes that this yard is exposed to neighbours overlooking?

1. Yes 2. No [*circle one*]

b) If Yes, to which neighbour, and from where is he overlooking?

[*orientation of neighbour: North, south, etc. and from where is the neighbour overlooking: first floor windows, roof top, etc..*]

---

c) If No, why does he believe it is not overlooked?

---

4. To the best knowledge of the resident, how often did a person in any of these overlooking neighbouring dwellings overlook this yard lately?

[using the below scale, circle the number in front of the chosen scale]

1. Always 2. Often 3. Sometimes 4. Rarely 5. Never

C: The use of yards, rooftops and windows

1. Please. list the four yards in order, starting with the most violated yard by overlooking first and the least violated one last? [*Fill in the space with the yard orientation*]

1. ----------
2. ----------
3. ----------
4. ----------

2. Is there any yard in the house the resident believe that it is a waste of space and of no great use in his opinion, and why:

[*please, chose one and fill in the yard orientation and reasons, if any*]

1. Yes, the following yards and for these reasons:
   a) ------- yard, because ----------
   b) ------- yard, because ----------
   c) ------- yard, because ----------
2. All of the yards, because ----------
3. None of the yards.

3. Is there any of the yards in the house the resident believe that it is a very useful of space and is profitable in his opinion, and why:

[*please, chose one and fill in the yard orientation and reasons, if any*]

1. Yes, the following yards and for these reasons:
   a) ------- yard, because ----------
   b) ------- yard, because ----------
   c) ------- yard, because ----------
2. All of the yards, because ----------
3. None of the yards.

4. a) If the whether is fine, would the male members of the family use any of the yards for sitting and watch TV or drinking tea for example?:

1. Yes 2. No [*circle one*]

b) If Yes, which yard? ----------

c) If No, What are the reasons, listed by the most important ones first:

(1) ----------
(2) ----------
(3) ----------

5. a) If the whether is fine, would the female members of the family use any of the yards for sitting and watch TV or drinking tea for example?:

1. Yes 2. No [*circle one*]

b) If Yes, which yard? ----------

c) If No, What are the reasons listed by the most important ones first:

(1) ----------
(2) ----------
(3) ----------

9. Please, answer the following questions in regard to the use of the dwelling rooms' windows:
[Fill in the space or circle one of the choices]

Questions	Guests room	Living room	Bedroom
1. How often do residents open the windows? *[insert a number]* 1 every day 2 2-3 times a week 3 once a week 4 rarely	----------	----------	----------
2. a) Are the windows overlooked by neighbours?	Yes/No	Yes/No	Yes/No
b) If Yes, would residents open their windows more or less often if these windows were protected from overlooking?	- More - Less - Same	- More -Less -Same	- More - Less - Same
3. a) Are the resident's windows overlooking a neighbour's yard or rooms' windows?	Yes No	Yes No	Yes No
b) If yes, is there anyone in the family who looks out from these windows at the neighbour's yards or rooms, and how often? *[insert who, and use the scale of question No.1 of this table]*	---------- ---------- ----------	---------- ---------- ----------	---------- ---------- ----------
4. a) If the whether is fine, does the resident leave his windows open?	Yes No	Yes No	Yes No
b) If Yes, how often? *[use the scale of question No.1 in this table]*	---------- ----------	---------- ----------	---------- ----------
c) If No, why? *[insert reasons]*	----------	----------	----------

6. What is the height of the parapet wall? *[fill in the space]*
-------- meters

7. a) Is the roof exposed to neighbour overlooking? *[circle one]*
1. Yes 2. No
b) If Yes, to which neighbour?
---------- *[orientation of neighbour: North, south, etc..]*

8. How often and for what activities are the residents using this roof?
[insert the activity and the members of the family involve in this activity, and how often are they using this roof by using and inserting the number in front of the below scale]

1. Always 2. Often 3. Sometimes 4 Rarely 5. Never

Activity	Involves	Summer		Winter		Notes
		Day	Night	Day	Night	
1.						
2.						
3						

Please, ask the resident the following questions regarding his opinion about privacy and violation of privacy by overlooking.

1. If the resident feels like to sit outside in his dwelling yard while the whether was good, but someone in the adjoining dwelling is overlooking the yard, would he:

[*select one only*]

1. not be bothered by the overlooking at all, and will sit in the yard as there is no overlooking at all.
2. be bothered by the overlooking but will still sit in the yard and pay no attention to the overlooking.
3. be bothered by the overlooking but will sit in the yard and try to express his disturbance by overlooking: ----------
4. be bothered by the overlooking and will not sit in the yard.
5. others ----------

2. If the resident was alone and one of his neighbour is overlooking his dwelling indoor and outdoor spaces, does he feel more violated if he was:

[*please, circle the more violated one; if other fill in the space*]

1. in the yard or in the guests room ----------
2. in the yard or in the living room ----------
3. in the living room or in the bedroom ----------
4. in the living room or in the guest room ----------

3. Again, if the resident was alone in his yard, and one of his adjoining neighbours is overlooking the yard, does he feel more violated if he was

[*please, circle the more violated one; if other fill in the space*]

1. sitting or gardening ----------
2. gardening or watching TV ----------
3. watching TV or drinking tea ----------

4. According to the demonstration of the accompanied board, what is the residents opinion regarding the privacy degree of violation to the various situations in the following table:

[*insert the resident's opinion to each situation using the scale below*]

1. Very strong violation 2. Strong violation 3. Medium violation
4. Weak violation 5. No violation 6. Don't know

Situation	1	2	3	4
A				
B				
C				
D				

1. a) What were the reasons for designing the house with setback from all sides?

[*insert reasons*]

1. ----------
2. ----------
3. ----------

b) If the residents identifies the Municipality regulations as one of the reasons, what are the setback requirements applied to this dwelling?

[*circle one and fill in the space, if any*]

1. Resident believes they are as follows:
   North side ---------- meters South side ---------- meters
   East side ---------- meters West side ---------- meters
2. Resident knew about them but does not remember the exact requirements
3. Others ----------

2. If the setback requirements has been cancelled and they are no longer required by the municipality, will the resident prefers to build his new house in which of the accompanied models:

[*show the resident the models and ask him to chose one or more and fill in the space*]

1. Model number ---------.
2. Model number --------- with the following modifications: ----------
3. Others: ----------

3. Does the resident believe that the setback requirements of his dwelling, by providing the yards surrounding the dwelling, has: [*circle one*]

1. decreased the level of privacy in his dwelling.
2. increased the level of privacy in his dwelling.
3. not affected the level of privacy in his dwelling.
4. Others ----------

4. Does the resident believe that the attached house form is less violated by overlooking neighbours when compared to the de-attached house form? [*circle one*]

1. Yes 2. No 3. Others: ----------

*If the answer to the above question is **Yes**, please go to section F, otherwise continue with the following question:*

5. According to the followings:

a) if it has been proved to the resident that the attached house form increases the level of privacy in the dwelling compared to the de-attached house form,

b) and the municipality do not required setback requirements:

will the resident still prefers to build his new house according to his chose of models shown in question No. 2.?

1. Yes, the resident still prefers Model No.---------
2. No, the resident now prefers Model No.----------
3. Others: ----------

F. Background information of the resident:

1. How many person is living in this house? *[fill in the space]*
---------- person over 18 years old (without domestic helper)
---------- person under 18 years
---------- domestic helper

2. The number of cars owned by the household?
---------- cars

3. Is the house: *[circle one]*
1. owned 2. rented 3. others ----------

4. How old is this house? *[fill in the space]*
---------- years

5. How long have the resident and his family been living in this house? *[fill in the space]*
---------- years

6. What is the family position of the respondents
----

7. How old is the respondent?
---------- years

8. What is the nationality of the respondents?
----

9. In which city was the respondents born?
----

10. a) Has the residents been abroad? *[circle one]*
1. Yes 2. No

b) If yes, list the countries he visited and stayed there for a period of a month and over?
1. ----------
2. ----------
3. ----------
4. ----------

8. a) Was the resident involve in any way in the design process of this dwelling?
1. Yes 2. No

b) If Yes, was he influenced by any house design he has seen in any place, and why?
[indicate the place of that house design and reasons for being influenced by it]

----

9. What was the last schooling/college degree held by the resident? *[fill in the space]*

Site plan of the dwelling and its surroundings

Appendix B

Page

Chapter 6

Table: 6-1

House age

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	2	.9	.9	.9
1-3	1	32	15.0	15.0	16.0
4-6	2	67	31.5	31.5	47.4
7-9	3	48	22.5	22.5	70.0
>9	4	64	30.0	30.0	100.0
	Total	213	100.0	100.0	

Table: 6-2

House age by Neighbourhood

BGHYEAR	Count	AREA Rayan 1	K.Fahad 2	Eraja 3	Shifa 4	Sulimanya 5	Row Total
0			2				2
							.9
1		3	2	2	7	3	32
1-3							15.0
2		11	8	6	12	9	67
4-6							31.5
3		11	6	6	7	6	48
7-9							22.5
4		6	14	15	4	13	64
>9							30.0
	Column	31	32	29	30	31	213
(Continued)	Total	14.6	15.0	13.6	14.1	14.6	100.0

BGHYEAR House age by AREA Neighbourhood

BGHYEAR	AREA Nahdha 6	Dhaharah 7	Row Total
0			2
			.9
1	2	13	32
1-3			15.0
2	11	10	67
4-6			31.5
3	8	4	48
7-9			22.5
4	9	3	64
>9			30.0
Column	30	30	213
Total	14.1	14.1	100.0

Table: 6-3

BGHYEAR House age by CITY Location

BGHYEAR	CITY: Riyadh (1)	Tabuk (2)	Haqil (3)	Row Total
1 1-3	14	5	13	32 15.0
2 4-6	37	20	10	67 31.5
3 7-9	30	14	4	48 22.5
4 >9	39	22	3	64 30.0
Column Total	122 57.3	61 28.6	30 14.1	213 100.0

Table: 6-4

BGHYEAR House age by BGRESY Length of stay in house

BGHYEAR	BGRESY: 1-3 (1)	4-6 (2)	7-9 (3)	>9 (4)	Row Total
0		2			2 .9
1 1-3	30		2		32 15.0
2 4-6	14	51	2		67 31.5
3 7-9	7	14	27		48 22.5
4 >9	13	7	10	34	64 30.0
Column Total	64 30.0	74 34.7	41 19.2	34 16.0	213 100.0

Table: 6-5

BGHYEAR House age by BGRESY Length of stay in house
Respondents owning their houses only

BGHYEAR	BGRESY: 1-3 (1)	4-6 (2)	7-9 (3)	>9 (4)	Row Total
1 1-3	24				24 13.6
2 4-6	7	49	2		58 33.0
3 7-9	3	12	27		42 23.9
4 >9	2	6	10	34	52 29.5
Column Total	36 20.5	67 38.1	39 22.2	34 19.3	176 100.0

Table: 6-6

BGHOWN House ownership

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Own	1	176	82.6	82.6	82.6
Rent	2	37	17.4	17.4	100.0
	Total	213	100.0	100.0	

Table: 6-7

BGHOWN House ownership by CITY Location

BGHOWN	CITY: Riyadh (1)	Tabuk (2)	Haqil (3)	Row Total
1 Own	91	58	27	176
	51.7	33.0	15.3	82.6
	74.6	95.1	90.0	
2 Rent	31	3	3	37
	83.8	8.1	8.1	17.4
	25.4	4.9	10.0	
Column Total	122	61	30	213
	57.3	28.6	14.1	100.0

Table: 6-8

BGHOWN House ownership by AREA Neighbourhood

BGHOWN	AREA: Rayan (1)	Fahad (2)	Erija (3)	Shifa (4)	Sulimanya (5)	Nahdha (6)	Dhaharah (7)	Row Total
1 Own	25	22	18	26	30	28	27	176
	14.2	12.5	10.2	14.8	17.0	15.9	15.3	82.6
	80.6	68.8	62.1	86.7	96.8	93.3	90.0	
2 Rent	6	10	11	4	1	2	3	37
	16.2	27.0	29.7	10.8	2.7	5.4	8.1	17.4
	19.4	31.3	37.9	13.3	3.2	6.7	10.0	
Column Total	31	32	29	30	31	30	30	213

Table: 6-9

BGTOTAL Household total

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1-3	1	3	1.4	1.4	1.4
4-6	2	62	29.1	29.1	30.5
7-9	3	71	33.3	33.3	63.8
>9	4	77	36.2	36.2	100.0
	Total	213	100.0	100.0	

Table: 6-10

BGTOTAL Household total by CITY Location

BGTOTAL	Count / Row Pct / Col Pct	CITY: Riyadh 1	Tabuk 2	Haqil 3	Row Total
1		2		1	3
1-3		66.7		33.3	1.4
		1.6		3.3	
2		39	14	9	62
4-6		62.9	22.6	14.5	29.1
		32.0	23.0	30.0	
3		41	21	9	71
7-9		57.7	29.6	12.7	33.3
		33.6	34.4	30.0	
4		40	26	11	77
>9		51.9	33.8	14.3	36.2
		32.8	42.6	36.7	
Column Total		122 57.3	61 28.6	30 14.1	213 100.0

Table: 6-11

BGTOTAL Household total by AREA Neighbourhood

BGTOTAL	Count / Row Pct / Col Pct	AREA: Rayan 1	K.Fahad 2	Erija 3	Shifa 4	Sulimanya 5	Nahdha 6	Dhaharah 7	Row Total
1				1	1			1	3
1-3				33.3	33.3			33.3	1.4
				3.4	3.3			3.3	
2		6	8	12	13	4	10	9	62
4-6		9.7	12.9	19.4	21.0	6.5	16.1	14.5	29.1
		19.4	25.0	41.4	43.3	12.9	33.3	30.0	
3		9	15	11	6	12	9	9	71
7-9		12.7	21.1	15.5	8.5	16.9	12.7	12.7	33.3
		29.0	46.9	37.9	20.0	38.7	30.0	30.0	
4		16	9	5	10	15	11	11	77
>9		20.8	11.7	6.5	13.0	19.5	14.3	14.3	36.2
		51.6	28.1	17.2	33.3	48.4	36.7	36.7	
Column Total		31 14.6	32 15.0	29 13.6	30 14.1	31 14.6	30 14.1	30 14.1	213 100.0

Table: 6-12

BGADULT Household/adult

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1-3	1	122	57.3	57.3	57.3
4-6	2	79	37.1	37.1	94.4
>6	3	12	5.6	5.6	100.0
	Total	213	100.0	100.0	

Table: 6-13

BGADULT Household/adult by CITY Location

BGADULT	CITY: Riyadh (1)	Tabuk (2)	Haqil (3)	Row Total
1	78	25	19	122
1-3	63.9	20.5	15.6	57.3
	63.9	41.0	63.3	
2	38	31	10	79
4-6	48.1	39.2	12.7	37.1
	31.1	50.8	33.3	
3	6	5	1	12
>6	50.0	41.7	8.3	5.6
	4.9	8.2	3.3	
Column Total	122 57.3	61 28.6	30 14.1	213 100.0

Table: 6-14

BGADULT Household/adult by AREA Neighbourhood

BGADULT	AREA: Rayan (1)	K.Fahad (2)	Erija (3)	Shifa (4)	Sulimanya (5)	Nahdha (6)	Dhaharah (7)	Row Total
1	17	21	21	19	9	16	19	122
1-3	13.9	17.2	17.2	15.6	7.4	13.1	15.6	57.3
	54.8	65.6	72.4	63.3	29.0	53.3	63.3	
2	12	10	8	8	18	13	10	79
4-6	15.2	12.7	10.1	10.1	22.8	16.5	12.7	37.1
	38.7	31.3	27.6	26.7	58.1	43.3	33.3	
3	2	1		3	4	1	1	12
>6	16.7	8.3		25.0	33.3	8.3	8.3	5.6
	6.5	3.1		10.0	12.9	3.3	3.3	
Column Total	31 14.6	32 15.0	29 13.6	30 14.1	31 14.6	30 14.1	30 14.1	213 100.0

Table: 6-15

BGCHIL Household children

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
1-3	1	89	41.8	41.8	41.8
4-6	2	106	49.8	49.8	91.5
>6	3	16	7.5	7.5	99.1
None	4	1	.5	.5	99.5
	5	1	.5	.5	100.0
		213	100	100	

Table: 6-16

BGCHIL Household children by AREA Neighbourhood

BGCHIL	Count / Row Pct / Col Pct	AREA: Rayan (1)	K. Fahad (2)	Erija (3)	Shifa (4)	Sulimanya (5)	Nahdha (6)	Dhaharah (7)	Row Total
1		12	12	12	14	14	13	12	89
1-3		13.5	13.5	13.5	15.7	15.7	14.6	13.5	41.8
		38.7	37.5	41.4	46.7	45.2	43.3	40.0	
2		19	15	16	15	12	15	14	106
4-6		17.9	14.2	15.1	14.2	11.3	14.2	13.2	49.8
		61.3	46.9	55.2	50.0	38.7	50.0	46.7	
3			4	1	1	4	2	4	16
>6			25.0	6.3	6.3	25.0	12.5	25.0	7.5
			12.5	3.4	3.3	12.9	6.7	13.3	
4						1			1
None						100.0			.5
						3.2			
5			1						1
			100.0						.5
			3.1						
Column Total		31 14.6	32 15.0	29 13.6	30 14.1	31 14.6	30 14.1	30 14.1	213 100.0

Table: 6-17

House ownership

Own

Neighbourhood	1-3 Count	4-6 Count	7-9 Count	>9 Count
Rayan		3	6	16
King Fahad		1	12	9
Erija		6	7	5
Shifa	1	9	6	10
Sulimanya		4	11	15
Nahdha		8	9	11
Dhaharah	1	6	9	11

Table: 6-18

House ownership

Rent

Neighbourhood	1-3 Count	4-6 Count	7-9 Count	>9 Count
Rayan		3	3	
King Fahad		7	3	
Erija	1	6	4	
Shifa		4		
Sulimanya			1	
Nahdha		2		
Dhaharah		3		

Table 6-19

Riyadh

	House ownership			
	Own		Rent	
	Count	Row %	Count	Row %
Household total				
1-3	1	50.0%	1	50.0%
4-6	19	48.7%	20	51.3%
7-9	31	75.6%	10	24.4%
>9	40	100.0%		

Table 6-20

Tabuk

	House ownership			
	Own		Rent	
	Count	Row %	Count	Row %
Household total				
1-3				
4-6	12	85.7%	2	14.3%
7-9	20	95.2%	1	4.8%
>9	26	100.0%		

Table 6-21

Haqil

	House ownership			
	Own		Rent	
	Count	Row %	Count	Row %
Household total				
1-3	1	100.0%		
4-6	6	66.7%	3	33.3%
7-9	9	100.0%		
>9	11	100.0%		

Table 6-22

FINDINCO Analysed income group

Value Label	Value	Frequency	Percent	Percent	Percent
Low	1	30	14.1	14.1	14.1
Middle	2	162	76.1	76.1	90.1
High	3	21	9.9	9.9	100.0
		213	100.0	100.0	
	Total				

Table 6-23

FINDINCO Analysed income group by CITY Location

FINDINCO	CITY: Riyadh (1)	Tabuk (2)	Haqil (3)	Row Total
1 Low	13	8	9	30
	43.3	26.7	30.0	14.1
	10.7	13.1	30.0	
2 Middle	93	48	21	162
	57.4	29.6	13.0	76.1
	76.2	78.7	70.0	
3 High	16	5		21
	76.2	23.8		9.9
	13.1	8.2		
Column Total	122	61	30	213
	57.3	28.6	14.1	100.0

Table 6-24

FINDINCO Analysed income group by AREA Neighbourhood

FINDINCO	AREA: Rayan (1)	K.Fahad (2)	Erija (3)	Shifa (4)	Sulimanya (5)	Nahdha (6)	Dhaharah (7)	Row Total
1 Low			5	8		8	9	30
			16.7	26.7		26.7	30.0	14.1
			17.2	26.7		26.7	30.0	
2 Middle	23	24	24	22	26	22	21	162
	14.2	14.8	14.8	13.6	16.0	13.6	13.0	76.1
	74.2	75.0	82.8	73.3	83.9	73.3	70.0	
3 High	8	8			5			21
	38.1	38.1			23.8			9.9
	25.8	25.0			16.1			
Column Total	31	32	29	30	31	30	30	213
	14.6	15.0	13.6	14.1	14.6	14.1	14.1	100.0

Table 6-25

FINDINCO Analysed income group by AREAM2 Lot area m2

FINDINCO	AREAM2: <450 (1)	450-600 (2)	601-900 (3)	901-1500 (4)	>1500 (5)	Row Total
1 Low	19	4	7			30
	63.3	13.3	23.3			14.1
	25.7	20.0	6.4			
2 Middle	55	16	89	2		162
	34.0	9.9	54.9	1.2		76.1
	74.3	80.0	81.7	25.0		
3 High			13	6	2	21
			61.9	28.6	9.5	9.9
			11.9	75.0	100.0	
Column Total	74	20	109	8	2	213
	34.7	9.4	51.2	3.8	.9	100.0

Table 6-26

FINDINCO Analysed income group by BGHOWN House ownership

FINDINCO	BGHOWN Own (1)	BGHOWN Rent (2)	Row Total
1 Low	23	7	30
	76.7	23.3	14.1
	13.1	18.9	
2 Middle	132	30	162
	81.5	18.5	76.1
	75.0	81.1	
3 High	21		21
	100.0		9.9
	11.9		
Column Total	176	37	213
	82.6	17.4	100.0

Table 6-27

FINDINCO Analysed income group by BGTOTAL Household total

FINDINCO	BGTOTAL 1-3 (1)	BGTOTAL 4-6 (2)	BGTOTAL 7-9 (3)	BGTOTAL >9 (4)	Row Total
1 Low		16	4	10	30
		53.3	13.3	33.3	14.1
		25.8	5.6	13.0	
2 Middle	3	43	62	54	162
	1.9	26.5	38.3	33.3	76.1
	100.0	69.4	87.3	70.1	
3 High		3	5	13	21
		14.3	23.8	61.9	9.9
		4.8	7.0	16.9	
Column Total	3	62	71	77	213
	1.4	29.1	33.3	36.2	100.0

Table 6-28

FINDINCO Analysed income group by BGADULT Household/adult

FINDINCO	BGADULT 1-3 (1)	BGADULT 4-6 (2)	BGADULT >6 (3)	Row Total
1 Low	21	7	2	30
	70.0	23.3	6.7	14.1
	17.2	8.9	16.7	
2 Middle	94	61	7	162
	58.0	37.7	4.3	76.1
	77.0	77.2	58.3	
3 High	7	11	3	21
	33.3	52.4	14.3	9.9
	5.7	13.9	25.0	
Column Total	122	79	12	213
	57.3	37.1	5.6	100.0

Table 6-29

FINDINCO Analysed income group by BGCHIL Household children

FINDINCO	Row Pct / Col Pct	BGCHIL 1-3 (1)	4-6 (2)	>6 (3)	None (4)	(5)	Row Total
1		13	14	3			30
Low		43.3	46.7	10.0			14.1
		14.6	13.2	18.8			
2		67	83	11		1	162
Middle		41.4	51.2	6.8		.6	76.1
		75.3	78.3	68.8		100.0	
3		9	9	2	1		21
High		42.9	42.9	9.5	4.8		9.9
		10.1	8.5	12.5	100.0		
Column Total		89	106	16	1	1	213
		41.8	49.8	7.5	.5	.5	100.0

Table 6-30

FINDINCO Analysed income group by BGRESAG Respondent age

FINDINCO	Row Pct / Col Pct	BGRESAG <20 (1)	20-30 (2)	31-40 (3)	41-50 (4)	>50 (5)	Row Total
1			17	7	4	2	30
Low			56.7	23.3	13.3	6.7	14.1
			23.9	7.0	13.3	22.2	
2		3	49	81	22	7	162
Middle		1.9	30.2	50.0	13.6	4.3	76.1
		100.0	69.0	81.0	73.3	77.8	
3			5	12	4		21
High			23.8	57.1	19.0		9.9
			7.0	12.0	13.3		
Column Total		3	71	100	30	9	213
		1.4	33.3	46.9	14.1	4.2	100.0

Table 6-31

BGRESEDU Respondent education by FINDINCO Analysed income group

BGRESEDU	Row Pct / Col Pct	FINDINCO Low (1)	Middle (2)	Row Total
2		4		4
Secondary S		100.0		10.8
		57.1		
3		2	3	5
High S		40.0	60.0	13.5
		28.6	10.0	
4			6	6
Diploma			100.0	16.2
			20.0	
5		1	17	18
University		5.6	94.4	48.6
		14.3	56.7	
6			4	4
MS			100.0	10.8
			13.3	
Column Total		7	30	37
		18.9	81.1	100.0

Table 6-32

BGRESEDU Respondent education by BGRESY Length of stay in house

BGRESEDU	Row Pct	BGRESY 1-3 (1)	4-6 (2)	7-9 (3)	Total
2 Secondary S		3		1	4
		75.0		25.0	10.8
		10.7		50.0	
3 High S		5			5
		100.0			13.5
		17.9			
4 Diploma		4	2		6
		66.7	33.3		16.2
		14.3	28.6		
5 University		13	4	1	18
		72.2	22.2	5.6	48.6
		46.4	57.1	50.0	
6 MS		3	1		4
		75.0	25.0		10.8
		10.7	14.3		
	Column Total	28	7	2	37
		75.7	18.9	5.4	100.0

Table 6-33

AREAM2 Lot area m2

Value Label	Value	Frequency	Percent	Percent	Percent
<450	1	74	34.7	34.7	34.7
450-600	2	20	9.4	9.4	44.1
601-900	3	109	51.2	51.2	95.3
901-1500	4	8	3.8	3.8	99.1
>1500	5	2	.9	.9	100.0
	Total	213	100.0	100.0	

Table 6-34

AREA Neighbourhood by AREAM2 Lot area m2

AREA	Row Pct	AREAM2 <450 (1)	450-600 (2)	601-900 (3)	901-1500 (4)	>1500 (5)	Total
1 Rayan			2	26	3		31
			6.5	83.9	9.7		14.6
			10.0	23.9	37.5		
2 King Fahad		2	2	23	3	2	32
		6.3	6.3	71.9	9.4	6.3	15.0
		2.7	10.0	21.1	37.5	100.0	
3 Erija		28	1				29
		96.6	3.4				13.6
		37.8	5.0				
4 Shifa			11	19			30
			36.7	63.3			14.1
			55.0	17.4			
5 Sulimanya				29	2		31
				93.5	6.5		14.6
				26.6	25.0		
6 Nahdha		24	4	2			30
		80.0	13.3	6.7			14.1
		32.4	20.0	1.8			
7 Dhaharah		20		10			30
		66.7		33.3			14.1
		27.0		9.2			
	Column	74	20	109	8	2	213

Table 6-35

CITY Location by AREAM2 Lot area m2

CITY	AREAM2 <450 (1)	450-600 (2)	601-900 (3)	901-1500 (4)	>1500 (5)	Row Total
1 Riyadh	30	16	68	6	2	122
	24.6	13.1	55.7	4.9	1.6	57.3
	40.5	80.0	62.4	75.0	100.0	
2 Tabuk	24	4	31	2		61
	39.3	6.6	50.8	3.3		28.6
	32.4	20.0	28.4	25.0		
3 Haqil	20		10			30
	66.7		33.3			14.1
	27.0		9.2			
Column Total	74	20	109	8	2	213
	34.7	9.4	51.2	3.8	.9	100.0

Table 6-36

BGRESEDU Respondent education by AREAM2 Lot area m2

BGRESEDU	AREAM2 <450 (1)	450-600 (2)	601-900 (3)	901-1500 (4)	>1500 (5)	Row Total
1 Primary S	9	2	3			14
	64.3	14.3	21.4			8.0
	15.8	12.5	3.2			
2 Secondary S	12	3	8			23
	52.2	13.0	34.8			13.1
	21.1	18.8	8.6			
3 High S	17	6	27	1		51
	33.3	11.8	52.9	2.0		29.0
	29.8	37.5	29.0	12.5		
4 Diploma	7	1	19	1		28
	25.0	3.6	67.9	3.6		15.9
	12.3	6.3	20.4	12.5		
5 University	7	3	31	4		45
	15.6	6.7	68.9	8.9		25.6
	12.3	18.8	33.3	50.0		
6 MS			5	2	1	8
			62.5	25.0	12.5	4.5
			5.4	25.0	50.0	
7 Ph.D.					1	1
					100.0	.6
					50.0	
9 Illiterate	5	1				6
	83.3	16.7				3.4
	8.8	6.3				
Column Total	57	16	93	8	2	176
	32.4	9.1	52.8	4.5	1.1	100.0

Table 6-37

FINDINCO Analysed income group by AREAM2 Lot area m2

Page 1 of 1

FINDINCO	AREAM2 <450 (1)	450-600 (2)	601-900 (3)	901-1500 (4)	>1500 (5)	Row Total
1 Low	14	4	5			23
	60.9	17.4	21.7			13.1
	24.6	25.0	5.4			
2 Middle	43	12	75	2		132
	32.6	9.1	56.8	1.5		75.0
	75.4	75.0	80.6	25.0		
3 High			13	6	2	21
			61.9	28.6	9.5	11.9
			14.0	75.0	100.0	
Column Total	57	16	93	8	2	176
	32.4	9.1	52.8	4.5	1.1	100.0

Table 6-38

AREAM2 Lot area m2 by H.FENCE Fence Height

AREAM2	H.FENCE 1m-2m (2)	>2m<3m (3)	3m&> (4)	Row Total
1 <450	4	36	17	57
	7.0	63.2	29.8	32.4
	100.0	36.4	23.3	
2 450-600		12	4	16
		75.0	25.0	9.1
		12.1	5.5	
3 601-900		51	42	93
		54.8	45.2	52.8
		51.5	57.5	
4 901-1500			8	8
			100.0	4.5
			11.0	
5 >1500			2	2
			100.0	1.1
			2.7	
Column	4	99	73	176

Table 6-39

H.FENCE Fence Height by FINDINCO Analysed income group

H.FENCE	FINDINCO Low (1)	Middle (2)	High (3)	Row Total
2 1m-2m		4		4
				2.3
3 >2m<3m	15	78	6	99
				56.3
4 3m&>	8	50	15	73
				41.5
Column	23	132	21	176
Total	13.1	75.0	11.9	100.

Table 6-40

AREA Neighbourhood by BGRESAG Respondent age

	BGRESAG 20-30	31-40	41-50	>50	Row
Row Pct / Col Pct	2	3	4	5	Total
AREA					
1 Rayan	4 / 22.2 / 10.0	9 / 50.0 / 12.2	4 / 22.2 / 13.8	1 / 5.6 / 11.1	18 / 11.8
2 King Fahad	4 / 15.4 / 10.0	15 / 57.7 / 20.3	7 / 26.9 / 24.1		26 / 17.1
3 Erija	8 / 32.0 / 20.0	13 / 52.0 / 17.6	3 / 12.0 / 10.3	1 / 4.0 / 11.1	25 / 16.4
4 Shifa	8 / 36.4 / 20.0	13 / 59.1 / 17.6		1 / 4.5 / 11.1	22 / 14.5
5 Sulimanya	1 / 6.7 / 2.5	8 / 53.3 / 10.8	4 / 26.7 / 13.8	2 / 13.3 / 22.2	15 / 9.9
6 Nahdha	8 / 42.1 / 20.0	6 / 31.6 / 8.1	4 / 21.1 / 13.8	1 / 5.3 / 11.1	19 / 12.5
7 Dhaharah	7 / 25.9 / 17.5	10 / 37.0 / 13.5	7 / 25.9 / 24.1	3 / 11.1 / 33.3	27 / 17.8

Table 6-41

CITY Location by BGRESAG Respondent age

	BGRESAG 20-30	31-40	41-50	>50	Row
Count / Row Pct / Col Pct	2	3	4	5	Total
CITY					
1 Riyadh	24 / 26.4 / 60.0	50 / 54.9 / 67.6	14 / 15.4 / 48.3	3 / 3.3 / 33.3	91 / 59.9
2 Tabuk	9 / 26.5 / 22.5	14 / 41.2 / 18.9	8 / 23.5 / 27.6	3 / 8.8 / 33.3	34 / 22.4
3 Haqil	7 / 25.9 / 17.5	10 / 37.0 / 13.5	7 / 25.9 / 24.1	3 / 11.1 / 33.3	27 / 17.8
Column Total	40 / 26.3	74 / 48.7	29 / 19.1	9 / 5.9	152 / 100.0

Table 6-42

FINDINCO Analysed income group by BGRESAG Respondent age

FINDINCO	BGRESAG 2	3	4	5	Row Total
1 Low	14	5	4	2	25
	56.0	20.0	16.0	8.0	16.4
	35.0	6.8	13.8	22.2	
2 Middle	25	62	21	7	115
	21.7	53.9	18.3	6.1	75.7
	62.5	83.8	72.4	77.8	
3 High	1	7	4		12
	8.3	58.3	33.3		7.9
	2.5	9.5	13.8		
Column Total	40	74	29	9	152
	26.3	48.7	19.1	5.9	100.0

Count / Row Pct / Col Pct

Table 6-43

Riyadh

Respondent age	Analysed income group: Low	Middle	High
20-30	5	18	1
31-40	2	42	6
41-50	1	10	3
>50	1	2	

Table 6-44

Tabuk

Respondent age	Analysed income group: Low	Middle	High
20-30	6	3	
31-40		13	1
41-50	1	6	1
>50		3	

Table 6-45

Haqil

Respondent age	Analysed income group: Low	Middle	High
20-30	3	4	
31-40	3	7	
41-50	2	5	
>50	1	2	

Table 6-46

BGPLABR Respondent place of birth by CITY Location

BGPLABR	CITY: Riyadh (1)	Tabuk (2)	Haqil (3)	Row Total
1 Same city	37	38	15	90
	41.1	42.2	16.7	42.3
	30.3	62.3	50.0	
2 Same region	50	19	12	81
	61.7	23.5	14.8	38.0
	41.0	31.1	40.0	
3 S.A.	34	4	3	41
	82.9	9.8	7.3	19.2
	27.9	6.6	10.0	
4 Abroad	1			1
	100.0			.5
	.8			
Column Total	122	61	30	213
	57.3	28.6	14.1	100.0

Table 6-47

CITY Location by BGRESEDU Respondent education

CITY	BGRESEDU: Primary S. (1)	Secondary S. (2)	High S. (3)	Diploma (4)	University (5)	MS (6)	Row Total
1 Riyadh	1	2	6	5	16	4	34
	2.9	5.9	17.6	14.7	47.1	11.8	82.9
	50.0	66.7	75.0	83.3	88.9	100.0	
2 Tabuk	1	1	1		1		4
	25.0	25.0	25.0		25.0		9.8
	50.0	33.3	12.5		5.6		
3 Haqil			1	1	1		3
			33.3	33.3	33.3		7.3
			12.5	16.7	5.6		
Column Total	2	3	8	6	18	4	41
	4.9	7.3	19.5	14.6	43.9	9.8	100.0

Chapter 7

Table 7-1

UNUSFY not used fully yards

Value Label	Value	Frequency	Percent	Percent	Percent
specified yards	1	165	77.5	77.5	77.5
all yards	2	25	11.7	11.7	89.2
none of the yards	3	23	10.8	10.8	100.0
	Total	213	100.0	100.0	

Table 7-2

RS1UNUSY Reason for not used fully of the yard

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	31	14.6	14.6	14.6
Narrow yard	1	149	70.0	70.0	84.5
Overlooked by neighb.	2	33	15.5	15.5	100.0
	Total	213	100.0	100.0	

Table 7-3

RS1UNUSY Reason for unuse fully of the yard

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	31	14.6	14.6	14.6
Narrow yard	1	149	70.0	70.0	84.5
Overlooked by neighb.	2	33	15.5	15.5	100.0
	Total	213	100.0	100.0	

Table 7-4

RS2UNUSY Reason for unuse fully of the yard

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	115	54.0	55.3	55.3
Narrow yard	1	24	11.3	11.5	66.8
Overlooked by neighb.	2	53	24.9	25.5	92.3
Far a way	3	16	7.5	7.7	100.0
	.	5	2.3	Missing	
	Total	213	100.0	100.0	

Table 7-5

Y1OVERN Adjoining Neighbour Y1

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Vacant Land	2	1	.5	.5	.5
Villa	3	1	.5	.5	.9
S./relative n.	21	3	1.4	1.4	2.3
S./vacant land	22	68	31.9	31.9	34.3
S./villa	23	111	52.1	52.1	86.4
S./high-storey	24	2	.9	.9	87.3
S./single storey	25	9	4.2	4.2	91.5
S./no window V.	28	1	.5	.5	92.0
S./Single S. comm.	29	8	3.8	3.8	95.8
S./school	30	9	4.2	4.2	100.0
	Total	213	100.0	100.0	

Table 7-6

Y2OVERN Adjoining Neighbour Y2

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Relative N.	1	6	2.8	2.8	2.8
Vacant Land	2	38	17.8	17.8	20.7
Villa	3	108	50.7	50.7	71.4
Single Storey N.	5	3	1.4	1.4	72.8
Commerce+residential	6	2	.9	.9	73.7
No Windows Villa	8	2	.9	.9	74.6
Single storey commerce	9	1	.5	.5	75.1
School	11	1	.5	.5	75.6
S./relative n.	21	1	.5	.5	76.1
S./vacant land	22	12	5.6	5.6	81.7
S./villa	23	36	16.9	16.9	98.6
S./no window V.	28	1	.5	.5	99.1
S./school	30	2	.9	.9	100.0
	Total	213	100.0	100.0	

Table 7-7

Y3OVERN Adjoining Neighbour Y3

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Relative N.	1	12	5.6	5.6	5.6
Vacant Land	2	48	22.5	22.5	28.2
Villa	3	129	60.6	60.6	88.7
Multi-storey	4	1	.5	.5	89.2
Single Storey N.	5	9	4.2	4.2	93.4
Commerce+residential	6	3	1.4	1.4	94.8
Single storey commerce	9	2	.9	.9	95.8
S./vacant land	22	2	.9	.9	96.7
S./villa	23	5	2.3	2.3	99.1
S./single storey	25	1	.5	.5	99.5
S./school	30	1	.5	.5	100.0
	Total	213	100.0	100.0	

Table 7-8

Y4OVERN Adjoining Neighbour Y4

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Relative N.	1	2	.9	.9	.9
Vacant Land	2	47	22.1	22.1	23.0
Villa	3	140	65.7	65.7	88.7
Multi-storey	4	1	.5	.5	89.2
Single Storey N.	5	10	4.7	4.7	93.9
Commerce+residential	6	6	2.8	2.8	96.7
Single story commerce	9	1	.5	.5	97.2
S./vacant land	22	2	.9	.9	98.1
S./villa	23	2	.9	.9	99.1
S./multi-storey	24	1	.5	.5	99.5
S./single storey	25	1	.5	.5	100.0
	Total	213	100.0	100.0	

Table 7-9

Y1OVERN Adjoining Neighbour Y1 by AREA Neighbourhood

Count / Y1OVERN	Rayan 1	K.Fahad 2	Erija 3	Shifa 4	Sulimanya 5	Nahdha 6	Dhaharah 7	Row Total
2 Vacant Land						1		1 .5
3 Villa		1						1 .5
21 S./relative n.				1	2			3 1.4
22 S./vacant land	14	6	6	16	7	9	10	68 31.9
23 S./villa	12	22	19	13	18	17	10	111 52.1
24 S./multi-storey		1			1			2 .9
25 S./single storey	2		1		1	2	3	9 4.2
28 S./no window V.	1							1 .5
29 S./Single S. com	2		2		2		2	8 3.8
30 S./school		2	1			1	5	9 4.2
Column Total	31 14.6	32 15.0	29 13.6	30 14.1	31 14.6	30 14.1	30 14.1	213 100.0

Table 7-10

Y2OVERN Adjoining Neighbour Y2 by AREA Neighbourhood

Y2OVERN	AREA Rayan 1	K.Fahad 2	Erija 3	Shifa 4	Suliman ya 5	Nahdha 6	Dhaharah 7	Row Total
1 Relative N.		1		1	1		3	6 2.8
2 Vacant Land	2	5	9	8	6	3	5	38 17.8
3 Villa	17	16	13	15	19	20	8	108 50.7
5 Single Storey N.							3	3 1.4
6 Commerce+reside.	2							2 .9
8 No Windows Villa	2							2 .9
9 Single storey com							1	1 .5
11 School					1			1 .5
21 S./relative n.						1		1 .5
22 S./vacant land	1	1	1	2	2	4	1	12 5.6
23 S./villa	6	9	6	3	1	2	9	36 16.9
28 S./no window V.	1							1 .5
30 S./school				1	1			2 .9
Column Total	31 14.6	32 15.0	29 13.6	30 14.1	31 14.6	30 14.1	30 14.1	213 100.0

Table 7-11

Y3OVERN Adjoining Neighbour Y3 by AREA Neighbourhood

	AREA							
	Rayan	K.Fahad	Erija	Shifa	Sulimanya	Nahdha	Dhaharah	
	1	2	3	4	5	6	7	Total
Y3OVERN								
1 Relative N.	1	2	2	1	1	2	3	12 5.6
2 Vacant Land	8	5	6	9	6	9	5	48 22.5
3 Villa	18	21	21	20	22	18	9	129 60.6
4 Multi-storey		1						1 .5
5 Single Storey N.	1						8	9 4.2
6 Commerce+reside.	2					1		3 1.4
9 Single story com.					1		1	2 .9
23 S./villa	1	1			1		2	5 2.3
Column	31	32	29	30	31	30	30	213
Total	14.6	15.0	13.6	14.1	14.6	14.1	14.1	100.0

Table 7-12

Y4OVERN Adjoining Neighbour Y4 by AREA Neighbourhood

	AREA							
	Rayan	K.Fahad	Erija	Shifa	Sulimanya	Nahdha	Dhaharah	
	1	2	3	4	5	6	7	Row Total
Y4OVERN								
1 Relative N.	1					1		2 .9
2 Vacant Land	2	2	9	15	3	10	6	47 22.1
3 Villa	25	29	20	12	24	18	12	140 65.7
4 Multi-storey					1			1 .5
5 Single Storey N.				1	1		8	10 4.7
6 Commerce+reside.	2				1	1	2	6 2.8
9 Single story com.							1	1 .5
22 S./vacant land	1			1				2 .9
23 S./villa		1		1				2 .9
24 S./multi-storey					1			1 .5
25 S./single storey							1	1 .5
Column	31	32	29	30	31	30	30	213
Total	14.6	15.0	13.6	14.1	14.6	14.1	14.1	100.0

Table 7-13

Y1.SIZ by Y1OVRLEV Level of overlooking frequency

Y1.SIZ	Y1OVRLEV always (1)	often (2)	sometimes (3)	rarely (4)	never (5)	inapplicable (9)	Row Total
2			1			2	3
							1.4
3		3	7	9		16	35
							16.4
4	1	11	11	10	2	15	50
							23.5
5		2	6	7	1	14	30
							14.1
6			7	12	2	17	38
							17.8
7			2	8		5	15
							7.0
8			2	6		4	12
							5.6
9			3	3		6	12
							5.6
10		1		1		4	6
							2.8
11			1	1			2
							.9
12		1		2		1	4
							1.9
13				1			1
							.5
14						1	1
							.5
15						1	1
							.5
Column	1	18	40	60	5	89	213
(Continued) Total	.5	8.5	18.8	28.2	2.3	41.8	100.0

Y1.SIZ by Y1OVRLEV Level of overlooking frequency

Y1.SIZ	Y1OVRLEV always (1)	often (2)	sometimes (3)	rarely (4)	never (5)	inapplicable (9)	Row Total
20						2	2
							.9
21						1	1
							.5
Column	1	18	40	60	5	89	213
Total	.5	8.5	18.8	28.2	2.3	41.8	100.0

Table 7-14

Y2.SIZ by Y2OVRLEV Level of overlooking frequency

Y2.SIZ	Y2OVRLEV always 0	often 1	sometimes 2	rarely 3	never 4	inapplicable 5	9	Row Total
2			2	5	9	3	20	39
								18.3
3			2	10	12		20	44
								20.7
4		1	1	5	4	1	22	34
								16.0
5			1	1	8		25	35
								16.4
6				5	7	1	22	35
								16.4
7	1			1	2		4	8
								3.8
8			1	1	1		3	6
								2.8
9							1	1
								.5
10							1	1
								.5
11					1			1
								.5
12				1	1			2
								.9
14							1	1
								.5
15							1	1
								.5
16							1	1
								.5
Column Total	1 .5	1 .5	7 3.3	30 14.1	46 21.6	5 2.3	123 57.7	213 100.0

(Continued)

Y2.SIZ by Y2OVRLEV Level of overlooking frequency

Y2.SIZ	Y2OVRLEV always 0	often 1	sometimes 2	rarely 3	never 4	inapplicable 5	9	Row Total
20							2	2
								.9
22					1			1
								.5
24				1				1
								.5
Column Total	1 .5	1 .5	7 3.3	30 14.1	46 21.6	5 2.3	123 57.7	213 100.0

Table 7-15

Y3.SIZ by Y3OVRLEV Level of overlooking frequency

Y3.SIZ	Y3OVRLEV always 1	often 2	sometimes 3	rarely 4	never 5	inapplicable 9	Row Total
0			1	1	1	23	26
							12.2
1				1		1	2
							.9
2	1	14	36	31		48	130
							61.0
3		2	3	10		14	29
							13.6
4			2	4		5	11
							5.2
5			1	1		2	4
							1.9
6			1			3	4
							1.9
8						2	2
							.9
10						1	1
							.5
12			1				1
							.5
13				1		1	2
							.9
15			1				1
							.5
Column Total	1	16	46	49	1	100	213
	.5	7.5	21.6	23.0	.5	46.9	100.0

Table 7-16

Y4.SIZ by Y4OVRLEV Level of overlooking frequency

Y4.SIZ	Y4OVRLEV always 0	often 1	sometimes 2	rarely 3	never 4	inapplicable 5	9	Row Total
0	1						33	34
								16.0
1				1	1		1	3
								1.4
2	1	1	6	35	55	5	51	154
								72.6
3			1	3	4		6	14
								6.6
4					3			3
								1.4
5	1						2	3
								1.4
7							1	1
Column Total	3	1	7	39	63	5	94	212
	1.4	.5	3.3	18.4	29.7	2.4	44.3	100.0

Table 7-17

Y1.USE1 Use of yard 1 by MAINYARD Main Yard

Y1.USE1	MAINYARD N.yard 1	S.yard 2	E.yard 3	W.yard 4	Total
1 men sitting	26	18	29	14	87 40.8
2 women sitting	1			1	2 .9
3 family sitting	13	8	9	8	38 17.8
4 children playing	11	10	13	8	42 19.7
5 hanging washing		2			2 .9
6 storage		3	1	1	5 2.3
9 not used	3	3	6	2	14 6.6
11 gardening	2	5	1	5	13 6.1
12 parking		3		2	5 2.3
Column Total	57 26.8	53 24.9	61 28.6	42 19.7	213 100.0

Table 7-18

Y2.USE1 Use of yard2 by Y2 Yard2

Y2.USE1	Y2 N.yard 1	S.yard 2	E.yard 3	W.yard 4	Total
1 men sitting	2	5	2	4	13 6.1
2 women sitting	4	8	5	5	22 10.3
3 family sitting	14	17	10	14	55 25.8
4 children playing	9	10	12	14	45 21.1
5 hanging washing	4	3	3	6	16 7.5
6 storage	2	3	4	5	14 6.6
9 not used	6	3	3	2	14 6.6
11 gardening		2		3	5 2.3
12 parking	3	4	5	1	13 6.1
13 Slaughtering she.	1	1	1		3 1.4
Column Total	46 21.6	60 28.2	49 23.0	58 27.2	213 100.0

Table 7-19

Y3USE1 Use of yard3 by Y3 Yard3

Y3USE1	Y3 N.yard 1	S.yard 2	E.yard 3	W.yard 4	Inapplic 9	Total
1 men sitting				1		1 .5
2 women sitting	1	1	1			3 1.4
3 family sitting	2	3	2	2		9 4.2
4 children playing		3	1			4 1.9
5 hanging washing	7	1	8	5		21 9.9
6 storage	9	10	12	6		37 17.4
7 satellite placi.		1				1 .5
9 not used	18	19	14	19	1	71 33.3
11 gardening	5	1				6 2.8
12 parking				1		1 .5
14 family sitting a	1	1				2 .9
Column Total	57 26.8	45 21.1	48 22.5	41 19.2	22 10.3	213 100.0

Table 7-20

Y4USE1 Use of yard4 by Y4 Yard4

Y4USE1	Y4 0	N.yard 1	S.yard 2	E.yard 3	W.yard 4	Inapplic 9	Total
0	1						1 .5
3 family sitting					1		1 .5
5 hanging washing		2	2	7	7		18 8.5
6 storage		5	6	5	11		27 12.7
9 not used		26	32	22	33	2	115 54.0
11 gardening		1			2		3 1.4
12 parking		1					1 .5
13 Birds keeping		1		3	1		5 2.3
Column Total	1 .5	37 17.4	41 19.2	39 18.3	58 27.2	37 17.4	213 100.0

Table 7-21

Y1OVRLEV Level of overlooking frequency Y1 by H.FENCE Fence Height

	H.FENCE 1m-2m (2)	>2m<3m (3)	3m&> (4)	Total
1 always		1		1 / .5
2 often		6	12	18 / 8.5
3 sometimes	2	23	15	40 / 18.8
4 rarely	2	32	26	60 / 28.2
5 never	1	4		5 / 2.3
9 inapplicable	1	54	34	89 / 41.8
Column Total	6 / 2.8	120 / 56.3	87 / 40.8	213 / 100.0

Table 7-22

Y2OVRLEV Level of overlooking frequency Y2 by H.FENCE Fence Height

	H.FENCE 1m-2m (2)	>2m<3m (3)	3m&> (4)	Total
1 always			1	1 / .5
2 often		5	2	7 / 3.3
3 sometimes	1	19	10	30 / 14.1
4 rarely	4	25	17	46 / 21.6
5 never		5		5 / 2.3
9 inapplicable	1	66	56	123 / 57.7
Column Total	6 / 2.8	120 / 56.3	87 / 40.8	213 / 100.0

Table 7-23

Y3OVRLEV Level of overlooking frequency Y3 by H.FENCE Fence Height

Y3OVRLEV	H.FENCE 1m-2m (2)	>2m<3m (3)	3m&> (4)	Total
1 always			1	1
				.5
2 often		11	5	16
				7.5
3 sometimes	3	28	15	46
				21.6
4 rarely	1	29	19	49
				23.0
5 never		1		1
				.5
9 inapplicable	2	51	47	100
				46.9
Column	6	120	87	213
Total	2.8	56.3	40.8	100.0

Table 7-24

Y4OVRLEV Level of overlooking frequency Y4 by H.FENCE Fence Height

Y4OVRLEV	H.FENCE 1m-2m (2)	>2m<3m (3)	3m&> (4)	Total
0	1	2		3
				1.4
1 always			1	1
				.5
2 often	1	3	3	7
				3.3
3 sometimes		22	17	39
				18.3
4 rarely	3	41	20	64
				30.0
5 never		2	3	5
				2.3
9 inapplicable	1	50	43	94
				44.1
Column	6	120	87	213
Total	2.8	56.3	40.8	100.0

Table 7-25

Y1OVRLEV Level of overlooking frequency Y1 by EXTRAF.H Height of Extra Fence

Y1OVRLEV	EXTRAF.H 1m-2m (2)	>2m<3m (3)	3m&> (4)	Horizontal cover (7)	Row Total
3 sometimes		1			1
					3.1
4 rarely			1		1
					3.1
9 inapplicable	11	12	5	2	30
					93.8
Column	11	13	6	2	32
Total	34.4	40.6	18.8	6.3	100.0

Table 7-26

Y2OVRLEV Level of overlooking frequency Y2 by EXTRAF.H Height of Extra Fence

Y2OVRLEV / Count	EXTRAF.H 1m-2m (2)	>2m<3m (3)	3m&> (4)	Horizontal cover (6)	Inapplicable (9)	Row Total
3 sometimes	1					1 / 1.6
4 rarely	1	1				2 / 3.3
9 inapplicable	20	25	11	1	1	58 / 95.1
Column Total	22 / 36.1	26 / 42.6	11 / 18.0	1 / 1.6	1 / 1.6	61 / 100.0

Table 7-27

Y3OVRLEV Level of overlooking frequency Y3 by EXTRAF.H Height of Extra Fence

Y3OVRLEV / Count	EXTRAF.H 1m-2m (2)	>2m<3m (3)	3m&> (4)	Horizontal cover (7)	Row Total
2 often		1			1 / 3.6
3 sometimes			1	1	2 / 7.1
4 rarely	1		1		2 / 7.1
9 inapplicable	8	6	6	3	23 / 82.1
Column Total	9 / 32.1	7 / 25.0	8 / 28.6	4 / 14.3	28 / 100.0

Table 7-28

Y4OVRLEV Level of overlooking frequency Y4 by EXTRAF.H Height of Extra Fence

Y4OVRLEV / Count	EXTRAF.H 1m-2m (2)	>2m<3m (3)	3m&> (4)	Horizontal cover (7)	Row Total
4 rarely	2				2 / 14.3
9 inapplicable	4	2	5	1	12 / 85.7
Column Total	6 / 42.9	2 / 14.3	5 / 35.7	1 / 7.1	14 / 100.0

Table 7-29

Y1.SIZ by EXTRAF.H Height of Extra Fence

Y1.SIZ	EXTRAF.H 1m-2m (2)	>2m<3m (3)	3m&> (4)	Plane to Add (5)	Horizontal cover (6)	Horizontal cover (7)	Inapplicable (9)	Row Total
2	1				1		1	3
								1.4
3	5	5		3			22	35
								16.4
4	10	12	4	2	1		21	50
								23.5
5	6	4	5	4	2		9	30
								14.1
6	8	7	4	2	5	3	9	38
								17.8
7	1	2		2	5	2	3	15
								7.0
8	2	3	1	1	1		4	12
								5.6
9		4	2		1	2	3	12
								5.6
10			1		1		4	6
								2.8
11					1		1	2
								.9
12	1		1				2	4
								1.9
Column Total	37	37	20	14	18	7	80	213
(Continued)	17.4	17.4	9.4	6.6	8.5	3.3	37.6	100.0

Y1.SIZ by EXTRAF.H Height of Extra Fence

Y1.SIZ Count	EXTRAF.H 1m-2m (2)	>2m<3m (3)	3m&> (4)	Plane to Add (5)	Horizontal cover (6)	Horizontal cover (7)	Inapplicable (9)	Row Total
20	2							2
								.9
21	1							1
								.5
Column Total	37	37	20	14	18	7	80	213
	17.4	17.4	9.4	6.6	8.5	3.3	37.6	100.0

Table 7-30

Y2.SIZ by EXTRAF.H Height of Extra Fence

Y2.SIZ / Count	EXTRAF.H 1m-2m (2)	>2m<3m (3)	3m&> (4)	Plane to Add (5)	Horizontal cover (6)	Horizontal cover (7)	Inapplicable (9)	Row Total
2	9	4	3		2		21	39
								18.3
3	8	5	4	3		1	23	44
								20.7
4	5	8	3	1	7		10	34
								16.0
5	3	5	3	5	6	2	11	35
								16.4
6	7	12	4	1	2	1	8	35
								16.4
7		1	1	1	1	3	1	8
								3.8
8	2		1	1			2	6
								2.8
9			1					1
								.5
10							1	1
								.5
11							1	1
								.5
12	1						1	2
								.9
14		1						1
								.5
15		1						1
								.5
16							1	1
								.5
Column	37	37	20	14	18	7	80	213
(Continued) Total	17.4	17.4	9.4	6.6	8.5	3.3	37.6	100.0

Y2.SIZ by EXTRAF.H Height of Extra Fence

Y2.SIZ / Count	EXTRAF.H 1m-2m (2)	>2m<3m (3)	3m&> (4)	Plane to Add (5)	Horizontal cover (6)	Horizontal cover (7)	Inapplicable (9)	Row Total
20	2							2
								.9
22				1				1
								.5
24				1				1
								.5
Column	37	37	20	14	18	7	80	213
Total	17.4	17.4	9.4	6.6	8.5	3.3	37.6	100.0

Table 7-31

Y3.SIZ by EXTRAF.H Height of Extra Fence

Y3.SIZ	EXTRAF.H Count	1m-2m 2	>2m<3m 3	3m& 4	Plane to Add 5	Horizontal cover 6	Horizontal cover 7	Inapplicable 9	Row Total
0		5	11	3				7	26
									12.2
1								2	2
									.9
2		21	15	10	10	16	4	54	130
									61.0
3		4	4	3	2	1	3	12	29
									13.6
4		3	2	1	1	1		3	11
									5.2
5		1	2	1					4
									1.9
6		1	1	1	1				4
									1.9
8								2	2
									.9
12			1						1
									.5
13			1	1					2
									.9
15		1							1
									.5
	Column	37	37	20	14	18	7	80	213
	Total	17.4	17.4	9.4	6.6	8.5	3.3	37.6	100.0

Table 7-32

Y4.SIZ by EXTRAF.H Height of Extra Fence

Y4.SIZ	EXTRAF.H Count	1m-2m 2	>2m<3m 3	3m& 4	Plane to Add 5	Horizontal cover 6	Horizontal cover 7	Inapplicable 9	Row Total
0		8	12	3		1		10	34
									16.0
1		1		1				1	3
									1.4
2		24	24	14	13	15	7	57	154
									72.6
3		2	1	1	1	1		8	14
									6.6
4		1		1				1	3
									1.4
5		1						2	3
									1.4
7						1			1
									.5
	Column	37	37	20	14	18	7	79	212
	Total	17.5	17.5	9.4	6.6	8.5	3.3	37.3	100.0

Table 7-33

UNUSFY unused fully yards by AREAM2 Lot area m2

UNUSFY	AREAM2 <450 (1)	450-600 (2)	601-900 (3)	901-1500 (4)	>1500 (5)	Row Total
1 specified yards	48	19	91	6	1	165 77.5
2 all yards	21		4			25 11.7
3 none of the yard	5	1	14	2	1	23 10.8
Column Total	74 34.7	20 9.4	109 51.2	8 3.8	2 .9	213 100.0

Table 7-34

Value Label	Value	Frequency	Percent	Percent	Percent
Specified yards	1	182	85.4	85.4	85.4
All yards	2	11	5.2	5.2	90.6
None of the yards	3	20	9.4	9.4	100.0
		213	100.0	100.0	
	Total				

Table 7-35

Y1.SIZ by MAXOVRY1 The most overlooked yard

Y1.SIZ	MAXOVRY1 Main yard (0)	yard 2 (1)	yard 3 (2)	Backyard (3)	None (4)	All yard (5)	(6)	Total
2			1	1	1			3 1.4
3		9	9	7	6	2	2	35 16.4
4	1	23	11	9	4	1	1	50 23.5
5		10	8	5	4	2	1	30 14.1
6	1	13	9	7	7	1		38 17.8
7		10	1	2	2			15 7.0
8		7		3	2			12 5.6
9		4	2	2	4			12 5.6
10		2	1	2		1		6 2.8
11		1			1			2 .9
12		2	1	1				4 1.9
14				1				1 .5
15		1						1 .5
Column Total	2 .9	83 39.0	44 20.7	41 19.2	32 15.0	7 3.3	4 1.9	213 100.0

(Continued)

Y1.SIZ by MAXOVRY1 The most overlooked yard

Y1.SIZ	MAXOVRY1 Main yard (0)	yard 2 (1)	yard 3 (2)	Backyard (3)	None (4)	All yards (5)	(6)	Row Total
20			1	1				2
								.9
21					1			1
								.5
Column Total	2	83	44	41	32	7	4	213
	.9	39.0	20.7	19.2	15.0	3.3	1.9	100.0

Table 7-36

Y2.SIZ by MAXOVRY1 The most overlooked yard

Y2.SIZ	MAXOVRY1 Main yard (0)	yard 2 (1)	yard 3 (2)	Backyard (3)	None (4)	All yards (5)	(6)	Row Total
2	1	15	6	7	9		1	39
								18.3
3	1	13	12	8	5	2	3	44
								20.7
4		14	8	3	7	2		34
								16.0
5		13	5	13	4			35
								16.4
6		20	5	3	5	2		35
								16.4
7		4	3	1				8
								3.8
8		2	2	1	1			6
								2.8
9		1						1
								.5
10						1		1
								.5
11				1				1
								.5
12			1	1				2
								.9
14					1			1
								.5
15				1				1
								.5
16		1						1
								.5
Column Total	2	83	44	41	32	7	4	213
(Continued)	.9	39.0	20.7	19.2	15.0	3.3	1.9	100.0

Y2.SIZ by MAXOVRY1 The most overlooked yard

Y2.SIZ	MAXOVRY1 Main yard (0)	yard 2 (1)	yard 3 (2)	Backyard (3)	None (4)	All yards (5)	(6)	Row Total
20			1	1				2
								.9
22				1				1
								.5
24			1					1
								.5
Column Total	2	83	44	41	32	7	4	213
	.9	39.0	20.7	19.2	15.0	3.3	1.9	100.0

Table 7-37

Y3.SIZ by MAXOVRY1 The most overlooked yard

Y3.SIZ	MAXOVRY1 Main yard (0)	yard 2 (1)	yard 3 (2)	Backyard (3)	None (4)	All yards (5)	(6)	Row Total
0		17	3	3	1	2		26
								12.2
1		1			1			2
								.9
2	1	43	33	29	16	5	3	130
								61.0
3		13	4	3	8		1	29
								13.6
4		5	3	1	2			11
								5.2
5		1		1	2			4
								1.9
6		1		2	1			4
								1.9
8		1			1			2
								.9
10			1					1
								.5
12				1				1
								.5
13		1		1				2
								.9
15	1							1
								.5
Column Total	2	83	44	41	32	7	4	213
	.9	39.0	20.7	19.2	15.0	3.3	1.9	100.0

Table 7-38

Y4.SIZ by MAXOVRY1 The most overlooked yard

Y4.SIZ	MAXOVRY1 Main yard	yard 2	yard 3	Backyard	None	All yards	Row Total
0		20	7	4	1	2	34
							16.0
1		1		1	1		3
							1.4
2	1	53	30	33	28	5	4	154
								72.6
3	1	5	3	3	2			14
								6.6
4		2	1					3
								1.4
5		1	2					3
								1.4
Column Total	2 .9	83 39.2	43 20.3	41 19.3	32 15.1	7 3.3	4 1.9	212 100.0

Table 7-39

WINBOVR If bedroom window is overlooked by Y1OVERN OVERLOOKING NEIGHBOUR Y1

WINBOVR	Y1OVERN Vacant land	Villa	S./relative n.	S./vacant land	S./villa	S./multi storey	S./single storey	Row Total
1 Yes	1		2	46	82	2	7	150
								70.4
2 No		1	1	22	29		2	63
								29.6
Column Total	1 .5	1 .5	3 1.4	68 31.9	111 52.1	2 .9	9 4.2	213 100.0

(Continued)

WINBOVR If bedroom window is overlooked by Y1OVERN OVERLOOKING NEIGHBOUR Y1

WINBOVR Count	Y1OVERN S./no window V.	S./Single S. comm.	S./school	Row Total
1 Yes		4	6	150
				70.4
2 No	1	4	3	63
				29.6
Column Total	1 .5	8 3.8	9 4.2	213 100.0

Table 7-40

WINBOVR If bedroom window is overlooked by Y2OVERN OVERLOOKING NEIGHBOUR Y2

WINBOVR	Y2OVERN Relative N.	Vacant land	Villa	Single S storey N.	Commercial+resid	No Windows villa	Single storey comm.	Row Total
1 Yes	6	18	83	2	2	1	1	150
								70.4
2 No		20	25	1		1		63
								29.6
Column Total	6 2.8	38 17.8	108 50.7	3 1.4	2 .9	2 .9	1 .5	213 100.0

(Continued)

WINBOVR If bedroom is overlooked by Y2OVERN OVERLOOKING NEIGHBOUR Y2

WINBOVR	Y2OVERN School	S./relative n.	S./vacant land	S./villa	S./no window V.	S./school	Row Total
	11	21	22	23	28	30	
1 Yes		1	10	24	1	1	150 70.4
2 No	1		2	12		1	63 29.6
Column Total	1 .5	1 .5	12 5.6	36 16.9	1 .5	2 .9	213 100.0

Table 7-41

WINBOVR If bedroom window is overlooked by Y3OVERN OVERLOOKING NEIGHBOUR Y3

WINBOVR	Y3OVERN N.	Relative land	Vacant	Villa	High-rise	Single storey N.	Commercial +reside.	Single storey comm.	Row Total
	1	2	3	4	5	6	9		
1 Yes	7	31	96	1	5	3	1	150 70.4	
2 No	5	17	33		4		1	63 29.6	
Column Total	12 5.6	48 22.5	129 60.6	1 .5	9 4.2	3 1.4	2 .9	213 100.0	

(Continued)

WINBOVR If bedroom window is overlooked by Y3OVERN OVERLOOKING NEIGHBOUR

WINBOVR	S./vacant land	S./villa	S./single storey	S./school	Row Total
	22	23	25	30	
1 Yes		5		1	150 70.4
2 No	2		1		63 29.6
Column Total	2 .9	5 2.3	1 .5	1 .5	213 100.0

Table 7-42

WINBOVR If bedroom window is overlooked by Y4OVERN OVERLOOKING NEIGHBOUR Y4

WINBOVR	Y4OVERN N.	Relative land	Vacant	Villa	High-rise	Single storey N.	Commercial +reside.	Single storey comm.	Row Total
	1	2	3	4	5	6	9		
1 Yes		30	104	1	5	6		150 70.4	
2 No	2	17	36		5		1	63 29.6	
Column Total	2 .9	47 22.1	140 65.7	1 .5	10 4.7	6 2.8	1 .5	213 100.0	

(Continued)

WINBOVR If bedroom window is overlooked by Y4OVERN OVERLOOKING NEIGHBOUR Y4

WINBOVR	S./vacant land	S./villa	S./multi story	S./single storey	Row Total
	22	23	24	25	
1 Yes	2	1	1		150 70.4
2 No		1		1	63 29.6
Column Total	2 .9	2 .9	1 .5	1 .5	213 100.0

Table 7-43

WINSLEV If sitting room not overlooked how often open windows
by WINSOPN Opening of sitting room windows

	WINSOPN				
Count	Everyday 1	2-3 week. 2	Weekly 3	Rarely 4	Row Total
WINSLEV					
1 More	16	33	45	17	111 / 52.1
3 Same		5	2	1	8 / 3.8
9 Inapplicable	16	20	30	28	94 / 44.1
Column Total	32 / 15.0	58 / 27.2	77 / 36.2	46 / 21.6	213 / 100.0

Table 7-44

WINBLEV If bedroom not overlooked how often open windows
by WINBOPN Opening of bedroom windows

	WINBOPN				
Count	Everyday 1	2-3 week. 2	Weekly 3	Rarely 4	Row Total
WINBLEV					
1 More	78	17	11	38	144 / 67.6
3 Same				8	8 / 3.8
9 Inapplicable	45	11	2	3	61 / 28.6
Column Total	123 / 57.7	28 / 13.1	13 / 6.1	49 / 23.0	213 / 100.0

Table 7-45

WINLLEV If living room not overlooked how often open windows
by WINLOPN Opening of living room windows

	WINLOPN					
Count	0	Everyday 1	2-3 week. 2	Weekly 3	Rarely 4	Row Total
WINLLEV						
0	1					1 / .5
1 More		33	34	21	10	98 / 46.0
9 Inapplicable		61	35	15	3	114 / 53.5
Column Total	1 / .5	94 / 44.1	69 / 32.4	36 / 16.9	13 / 6.1	213 / 100.0

Table 7-46

WINBOPNW If weather fine, open bedroom windows

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	1	.5	.5	.5
Yes	1	201	94.4	94.4	94.8
No	2	11	5.2	5.2	100.0
	Total	213	100.0	100.0	

Table 7-47

WINLOPNW If weather fine, open living room windows

Value Label	Value	Frequency	Percent	Percent	Percent
	0	2	.9	.9	.9
Yes	1	207	97.2	97.2	98.1
No	2	4	1.9	1.9	100.0
	Total	213	100.0	100.0	

Table 7-48

WINSOPNW If weather fine, open sitting room window

Value Label	Value	Frequency	Percent	Percent	Percent
Yes	1	206	96.7	96.7	96.7
No	2	7	3.3	3.3	100.0
	Total	213	100.0	100.0	

Table 7-49

WINLOVR If living room window is overlooked by Y1OVERN Adjoining neighbour y1

		Y1OVERN Vacant land 2	Villa 3	S./relative n. 21	S./vacant land 22	S./villa 23	S./multi story 24	S./single story 25	Row Total
WINLOVR	0						1		1
									.5
	1	1	1		31	57	1	2	98
Yes									46.0
	2			3	37	54		7	114
No									53.5
	Column	1	1	3	68	111	2	9	213
(Continued)	Total	.5	.5	1.4	31.9	52.1	.9	4.2	100.0

WINLOVR If living room window is overlooked by Y1OVERN Adjoining neighbour y1

		Y1OVERN S./no window V. 28	S./Single S. comm. 29	S./school 30	Row Total
WINLOVR	0				1
					.5
	1		2	3	98
Yes					46.0
	2	1	6	6	114
No					53.5
	Column	1	8	9	213
	Total	.5	3.8	4.2	100.0

Table 7-50

WINLOVR If living room window is overlooked by Y2OVERN Adjoining neighbour y2

		Y2OVERN Relative N. 1	Vacant land 2	Villa 3	Single storey n. 5	Commerce +reside. 6	No Windows 8	Single storey villa comm. 9	Row Total
WINLOVR	0			1					1
									.5
	1	3	17	57	3	1			98
Yes									46.0
	2	3	21	50		1	2	1	114
No									53.5
	Column	6	38	108	3	2	2	1	213
(Continued)	Total	2.8	17.8	50.7	1.4	.9	.9	.5	100.0

WINLOVR If living room window is overlooked by Y2OVERN Adjoining neighbour y2

WINLOVR	Count	Y2OVERN: School	S./relative n.	S./vacant land	S./villa	S./no window V.	S./school	Row Total
		11	21	22	23	28	30	
0								1
								.5
1				2	13	1	1	98
Yes								46.0
2		1	1	10	23		1	114
No								53.5
	Column	1	1	12	36	1	2	213
	Total	.5	.5	5.6	16.9	.5	.9	100.0

Table 7-51

WINLOVR If living room window is overlooked by Y3OVERN Adjoining neighbour y3

WINLOVR	Count	Y3OVERN: Relative N.	Vacant land	Villa	High-rise	Single storey N.	S Commerce +reside.	Single storey comm.	Row Total
		1	2	3	4	5	6	9	
0									1
									.5
1		6	19	68		1			98
Yes									46.0
2		6	29	61	1	8	3	2	114
No									53.5
	Column	12	48	129	1	9	3	2	213
(Continued)	Total	5.6	22.5	60.6	.5	4.2	1.4	.9	100.0

WINLOVR If living room window is overlooked by Y3OVERN Adjoining neighbour y3

WINLOVR	Count	Y3OVERN: S./vacant land	S./villa	S./single story	S./school	Row Total
		22	23	25	30	
0			1			1
						.5
1		2	1	1		98
Yes						46.0
2			3		1	114
No						53.5
	Column	2	5	1	1	213
	Total	.9	2.3	.5	.5	100.0

Table 7-52

WINLOVR If living room window is overlooked by Y4OVERN Adjoining neighbour y4

WINLOVR	Count	Y4OVERN: Relative N.	Vacant land	Villa	High-rise	Single storey N.	Commerce +reside.	Single storey comm.	Row Total
		1	2	3	4	5	6	9	
0									1
									.5
1			14	72	1	5	2	1	98
Yes									46.0
2		2	33	68		5	4		114
No									53.5
	Column	2	47	140	1	10	6	1	213
(Continued)	Total	.9	22.1	65.7	.5	4.7	2.8	.5	100.0

WINLOVR If living room window is overlooked by Y4OVERN Adjoining neighbour y4

WINLOVR	Count	Y4OVERN: S./vacant land 22	S./villa 23	S./multi story 24	S./single story 25	Row Total
0				1		1
						.5
1 Yes		1	2			98
						46.0
2 No		1			1	114
						53.5
	Column Total	2 .9	2 .9	1 .5	1 .5	213 100.0

Table 7-53

AREAM2 Lot area m2 by WINBOVR If bedroom window is overlooked

AREAM2	Count	WINBOVR: Yes 1	No 2	Row Total
1 <450		49	25	74
				34.7
2 450-600		12	8	20
				9.4
3 601-900		79	30	109
				51.2
4 901-1500		8		8
				3.8
5 >1500		2		2
				.9
	Column Total	150 70.4	63 29.6	213 100.0

Table 7-54

AREAM2 Lot area m2 by WINLOVR If living room window is overlooked

AREAM2	Count	WINLOVR: Yes 0	Yes 1	No 2	Row Total
1 <450			34	40	74
					34.7
2 450-600			10	10	20
					9.4
3 601-900		1	51	57	109
					51.2
4 901-1500			3	5	8
					3.8
5 >1500				2	2
					.9
	Column Total	1 .5	98 46.0	114 53.5	213 100.0

Table 7-55

AREAM2 Lot area m2 by WINSOVR If sitting room window is overlooked

AREAM2	Count \ WINSOVR	Yes 1	No 2	Row Total
<450	1	43	31	74 / 34.7
450-600	2	10	10	20 / 9.4
601-900	3	61	48	109 / 51.2
901-1500	4	4	4	8 / 3.8
>1500	5	1	1	2 / .9
	Column Total	119 / 55.9	94 / 44.1	213 / 100.0

Table 7-56

BGTOTAL Household total by WINBOPN Opening of bedroom windows

BGTOTAL	Count \ WINBOPN	Everyday 1	2-3 week 2	Weekly 3	Rarely 4	Row Total
1-3	1	3				3 / 1.4
4-6	2	40	11	2	9	62 / 29.1
7-9	3	39	10	5	17	71 / 33.3
>9	4	41	7	6	23	77 / 36.2
	Column Total	123 / 57.7	28 / 13.1	13 / 6.1	49 / 23.0	213 / 100.0

Table 7-57

BGTOTAL Household total by WINLOPN Opening of living room windows

BGTOTAL	Count \ WINLOPN	Everyday 0	2-3 week 1	Weekly 2	3	Rarely 4	Row Total
1-3	1		2	1			3 / 1.4
4-6	2		31	16	13	2	62 / 29.1
7-9	3	1	32	24	9	5	71 / 33.3
>9	4		29	28	14	6	77 / 36.2
	Column Total	1 / .5	94 / 44.1	69 / 32.4	36 / 16.9	13 / 6.1	213 / 100.0

Table 7-58

BGTOTAL Household total by WINSOPN Opening of sitting room windows

BGTOTAL	WINSOPN Everyday 1	2-3 week 2	Weekly 3	Rarely 4	Row Total
1 (1-3)	1	1	1		3
	1.4				1.4
2 (4-6)	9	13	25	15	62
	29.1				29.1
3 (7-9)	10	24	24	13	71
	33.3				33.3
4 (>9)	12	20	27	18	77
	36.2				36.2
Column Total	32	58	77	46	213
	15.0	27.2	36.2	21.6	100.0

Table 7-59

BGHOWN House ownership by WINBOPN Opening of bedroom windows

BGHOWN	WINBOPN Everyday 1	2-3 week 2	Weekly 3	Rarely 4	Row Total
1 (Own)	96	23	12	45	176
	54.5	13.1	6.8	25.6	82.6
2 (Rent)	27	5	1	4	37
	73.0	13.5	2.7	10.8	17.4
Column Total	123	28	13	49	213
	57.7	13.1	6.1	23.0	100.0

Table 7-60

BGHOWN House ownership by WINLOPN Opening of living room windows

BGHOWN	WINLOPN 0	Everyday 1	2-3 week 2	Weekly 3	Rarely 4	Row Total
1 (Own)	1	77	60	28	10	176
	.6	43.8	34.1	15.9	5.7	82.6
2 (Rent)		17	9	8	3	37
		45.9	24.3	21.6	8.1	17.4
Column Total	1	94	69	36	13	213
	.5	44.1	32.4	16.9	6.1	100.0

Table 7-61

BGHOWN House ownership by WINSOPN Opening of sitting room windows

BGHOWN	WINSOPN Everyday 1	2-3 week 2	Weekly 3	Rarely 4	Row Total
1 (Own)	28	46	64	38	176
	15.9	26.1	36.4	21.6	82.6
2 (Rent)	4	12	13	8	37
	10.8	32.4	35.1	21.6	17.4
Column Total	32	58	77	46	213
	15.0	27.2	36.2	21.6	100.0

Table 7-62

CITY Location by WINBOVR If bedroom window is overlooked

	WINBOVR		
Row Pct / Col Pct	Yes 1	No 2	Row Total
CITY			
1 Riyadh	84 / 68.9 / 56.0	38 / 31.1 / 60.3	122 / 57.3
2 Tabuk	50 / 82.0 / 33.3	11 / 18.0 / 17.5	61 / 28.6
3 Haqil	16 / 53.3 / 10.7	14 / 46.7 / 22.2	30 / 14.1
Column Total	150 / 70.4	63 / 29.6	213 / 100.0

Table 7-63

CITY Location by WINLOVR If living room window is overlooked

	WINLOVR			
Row Pct / Col Pct	0	Yes 1	No 2	Row Total
CITY				
1 Riyadh		53 / 43.4 / 54.1	69 / 56.6 / 60.5	122 / 57.3
2 Tabuk	1 / 1.6 / 100.0	34 / 55.7 / 34.7	26 / 42.6 / 22.8	61 / 28.6
3 Haqil		11 / 36.7 / 11.2	19 / 63.3 / 16.7	30 / 14.1
Column Total	1 / .5	98 / 46.0	114 / 53.5	213 / 100.0

Table 7-64

CITY Location by WINSOVR If sitting room window is overlooked

	WINSOVR		
Row Pct / Col Pct	Yes 1	No 2	Row Total
CITY			
1 Riyadh	65 / 53.3 / 54.6	57 / 46.7 / 60.6	122 / 57.3
2 Tabuk	46 / 75.4 / 38.7	15 / 24.6 / 16.0	61 / 28.6
3 Haqil	8 / 26.7 / 6.7	22 / 73.3 / 23.4	30 / 14.1
Column Total	119 / 55.9	94 / 44.1	213 / 100.0

Table 7-65

ROFOVR Roof overlooked by neighbours

Value Label	Value	Frequency	Percent	Percent	Percent
	0	3	1.4	1.4	1.4
yes	1	73	34.3	34.3	35.7
no	2	137	64.3	64.3	100.0
	Total	213	100.0	100.0	

Table 7-66

ROFPARH Roof parapet height by ROFOVR Roof overlooked by neighbours

ROFPARH	Count	ROFOVR yes 0	ROFOVR yes 1	ROFOVR no 2	Row Total
0		1			1
					.5
2			65	108	173
1m-1.7m					81.2
3		2	8	29	39
1.71 and more					18.3
	Column Total	3 1.4	73 34.3	137 64.3	213 100.0

Chapter 8

Table 8-1

PLAOVR1 (yard X sitting room) stronger overlooking place by EXTRAF.H Height of Extra Fence

EXTRAF.H

PLAOVR1	Count	1m-2m 2	>2m<3m 3	3m&> 4	Plane to Add 5	Horizan. cover 6	Horizan. +vertical 7	inapplicable 9	Row Total
0								1	1
									.5
1		2	4	2	2	2		3	15
Yard									7.0
2		33	30	17	11	13	7	73	184
Sitting room									86.4
3		2	3	1	1	3		3	13
Same									6.1
	Column Total	37 17.4	37 17.4	20 9.4	14 6.6	18 8.5	7 3.3	80 37.6	213 100.0

Table 8-2

PLAOVR1 (yard X sitting room) stronger overlooking place by AREAM2 Lot area m2

AREAM2

PLAOVR1	Count	<450 1	450-600 2	601-900 3	901-1500 4	>1500 5	Row Total
0			1				1
							.5
1		2	1	11	1		15
Yard							7.0
2		71	16	89	7	1	184
Sitting room							86.4
3		1	2	9		1	13
Same							6.1
	Column Total	74 34.7	20 9.4	109 51.2	8 3.8	2 .9	213 100.0

Table 8-3

ACTOVR1 (sitting X eating) stronger overlooking activity by FINDINCO Analysed income group

Count	FINDINCO Low (1)	Middle (2)	High (3)	Row Total
ACTOVR1 1 Sitting	1	3		4 / 1.9
2 Eating	24	127	19	170 / 79.8
3 Same	5	32	2	39 / 18.3
Column Total	30 / 14.1	162 / 76.1	21 / 9.9	213 / 100.0

Table 8-4

ACTOVR1 (sitting X eating) stronger overlooking activity by BGRESAG Respondent age

Count	BGRESAG <20 (1)	20-30 (2)	31-40 (3)	41-50 (4)	>50 (5)	Row Total
ACTOVR1 1 Sitting		4				4 / 1.9
2 Eating	3	56	84	21	6	170 / 79.8
3 Same		11	16	9	3	39 / 18.3
Column Total	3 / 1.4	71 / 33.3	100 / 46.9	30 / 14.1	9 / 4.2	213 / 100.0

Table 8-5

ACTOVR1 (sitting X eating) stronger overlooking activity

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Sitting	1	4	1.9	1.9	1.9
Eating	2	170	79.8	79.8	81.7
Same	3	39	18.3	18.3	100.0
	Total	213	100.0	100.0	

Table 8-6

ACTOVR2 (gardening X watching TV) stronger overlooking activity

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Gardening	1	3	1.4	1.4	1.4
Watching TV	2	111	52.1	52.1	53.5
Same	3	99	46.5	46.5	100.0
	Total	213	100.0	100.0	

Table 8-7

ACTOVR3 (watching TV X drinking tea) stronger overlooking activity

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Watching TV	1	40	18.8	18.8	18.8
Drinking tea	2	21	9.9	9.9	28.6
Same	3	152	71.4	71.4	100.0
	Total	213	100.0	100.0	

Table 8-8

PRI1A Overlooking 1A (Resident Man X Neighbour Man)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Very strong	1	84	39.4	39.4	39.4
Strong	2	106	49.8	49.8	89.2
Medium	3	22	10.3	10.3	99.5
Weak	4	1	.5	.5	100.0
	Total	213	100.0	100.0	

Table 8-9

PRI1B Overlooking 1B(Resident Man X Neighbour Old man)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Very strong	1	40	18.8	18.8	18.8
Strong	2	109	51.2	51.2	70.0
Medium	3	56	26.3	26.3	96.2
Weak	4	8	3.8	3.8	100.0
	Total	213	100.0	100.0	

Table 8-10

PRI1C Overlooking 1C(Resident Man X Neighbour Woman)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Very strong	1	42	19.7	19.7	19.7
Strong	2	86	40.4	40.4	60.1
Medium	3	42	19.7	19.7	79.8
Weak	4	33	15.5	15.5	95.3
No overlooking	5	10	4.7	4.7	100.0
	Total	213	100.0	100.0	

Table 8-11

PRI1D Overlooking 1D(Resident Man X Neighbour Child)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Very strong	1	11	5.2	5.2	5.2
Strong	2	35	16.4	16.4	21.6
Medium	3	42	19.7	19.7	41.3
Weak	4	84	39.4	39.4	80.8
No overlooking	5	41	19.2	19.2	100.0
	Total	213	100.0	100.0	

Table 8-12

PRI2A Overlooking 2A(Resident Old man X Neighbour Man)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Very strong	1	46	21.6	21.6	21.6
Strong	2	114	53.5	53.5	75.1
Medium	3	41	19.2	19.2	94.4
Weak	4	12	5.6	5.6	100.0
	Total	213	100.0	100.0	

Table 8-13

PRI2B Overlooking 2B(Resident Old man X Neighbour Old man)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Very strong	1	27	12.7	12.7	12.7
Strong	2	87	40.8	40.8	53.5
Medium	3	78	36.6	36.6	90.1
Weak	4	19	8.9	8.9	99.1
No overlooking	5	2	.9	.9	100.0
	Total	213	100.0	100.0	

Table 8-14

PRI2C Overlooking 2C(Resident Old man X Neighbour Woman)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Very strong	1	33	15.5	15.5	15.5
Strong	2	107	50.2	50.2	65.7
Medium	3	37	17.4	17.4	83.1
Weak	4	31	14.6	14.6	97.7
No overlooking	5	5	2.3	2.3	100.0
	Total	213	100.0	100.0	

Table 8-15

PRI2D Overlooking 2D(Resident Man X Neighbour Child)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Very strong	1	11	5.2	5.2	5.2
Strong	2	34	16.0	16.0	21.1
Medium	3	42	19.7	19.7	40.8
Weak	4	85	39.9	39.9	80.8
No overlooking	5	41	19.2	19.2	100.0
	Total	213	100.0	100.0	

Table 8-16

PRI3A Overlooking 3A(Resident Woman X Neighbour Man)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Very strong	1	182	85.4	85.4	85.4
Strong	2	31	14.6	14.6	100.0
	Total	213	100.0	100.0	

Table 8-17

PRI3B Overlooking 3B(Resident Woman X Neighbour Old man)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Very strong	1	133	62.4	62.4	62.4
Strong	2	71	33.3	33.3	95.8
Medium	3	8	3.8	3.8	99.5
Weak	4	1	.5	.5	100.0
	Total	213	100.0	100.0	

Table 8-18

PRI3C Overlooking 3C(Resident Woman X Neighbour Woman)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Very strong	1	29	13.6	13.6	13.6
Strong	2	68	31.9	31.9	45.5
Medium	3	60	28.2	28.2	73.7
Weak	4	33	15.5	15.5	89.2
No overlooking	5	23	10.8	10.8	100.0
	Total	213	100.0	100.0	

Table 8-19

PRI3D Overlooking 3D(Resident Woman X Neighbour Child)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Very strong	1	18	8.5	8.5	8.5
Strong	2	36	16.9	16.9	25.4
Medium	3	64	30.0	30.0	55.4
Weak	4	55	25.8	25.8	81.2
No overlooking	5	40	18.8	18.8	100.0
	Total	213	100.0	100.0	

Table 8-20

PRI4A Overlooking 4A(Resident Child X Neighbour Man)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Very strong	1	16	7.5	7.5	7.5
Strong	2	63	29.6	29.6	37.1
Medium	3	64	30.0	30.0	67.1
Weak	4	54	25.4	25.4	92.5
No overlooking	5	16	7.5	7.5	100.0
	Total	213	100.0	100.0	

Table 8-21

PRI4B Overlooking 4B(Resident Child X Neighbour Old man)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Very strong	1	11	5.2	5.2	5.2
Strong	2	51	23.9	23.9	29.1
Medium	3	55	25.8	25.8	54.9
Weak	4	65	30.5	30.5	85.4
No overlooking	5	31	14.6	14.6	100.0
	Total	213	100.0	100.0	

Table 8-22

PRI4C Overlooking 4C(Resident Child X Neighbour Woman)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Very strong	1	10	4.7	4.7	4.7
Strong	2	38	17.8	17.8	22.5
Medium	3	50	23.5	23.5	46.0
Weak	4	57	26.8	26.8	72.8
No overlooking	5	58	27.2	27.2	100.0
	Total	213	100.0	100.0	

Table 8-23

PRI4D Overlooking 4D(Resident Child X Neighbour Child)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Very strong	1	10	4.7	4.7	4.7
Strong	2	28	13.1	13.1	17.8
Medium	3	25	11.7	11.7	29.6
Weak	4	49	23.0	23.0	52.6
No overlooking	5	101	47.4	47.4	100.0
	Total	213	100.0	100.0	

Table 8-24

PRI3D Overlooking 3D(Resident Woman X Neighbour Child) by BGRESAG Respondent age

PRI3D	BGRESAG <20 (1)	20-30 (2)	31-40 (3)	41-50 (4)	>50 (5)	Row Total
1 Very strong		5	9	3	1	18
						8.5
2 Strong		11	19	5	1	36
						16.9
3 Medium		19	32	12	1	64
						30.0
4 Weak	2	19	26	7	1	55
						25.8
5 No overlooking	1	17	14	3	5	40
						18.8
Column	3	71	100	30	9	213
Total	1.4	33.3	46.9	14.1	4.2	100.0

Table 8-25

PRI4C Overlooking 4C(Resident Child X Neighbour Woman) by BGRESAG Respondent age

PRI4C	BGRESAG <20 (1)	20-30 (2)	31-40 (3)	41-50 (4)	>50 (5)	Total
1 Very strong		5	3	1	1	10
						4.7
2 Strong		10	19	8	1	38
						17.8
3 Medium	1	15	26	7	1	50
						23.5
4 Weak	1	22	21	10	3	57
						26.8
5 No overlooking	1	19	31	4	3	58
						27.2
Column Total	3	71	100	30	9	213
	1.4	33.3	46.9	14.1	4.2	100.0

Table 8-26

PRI1A Overlooking 1A(Resident Man X Neighbour Man) by BGRESAG Respondent age

PRI1A	BGRESAG <20 (1)	20-30 (2)	31-40 (3)	41-50 (4)	>50 (5)	Total
1 Very strong	1	25	43	10	5	84
						39.4
2 Strong	2	40	44	18	2	106
						49.8
3 Medium		6	12	2	2	22
						10.3
4 Weak			1			1
						.5
Column Total	3	71	100	30	9	213
	1.4	33.3	46.9	14.1	4.2	100.0

Table 8-27

BGRESEDU Respondent education by PRI3D Overlooking 3D(Resident Woman X Neighbour Child)

BGRESEDU	PRI3D Very strong (1)	Strong (2)	Medium (3)	Weak (4)	No overlooking (5)	Row Total
1 Primary S		1	3	4	6	14
						6.6
2 Secondary S	3	2	7	9	6	27
						12.7
3 High S	5	10	17	14	10	56
						26.3
4 Diploma	4	6	10	10	4	34
						16.0
5 University	3	11	25	14	10	63
						29.6
6 MS	2	4	2	4		12
						5.6
9 Illiterate		2			4	6
						2.8
Column Total	18	36	64	55	40	213
	8.5	16.9	30.0	25.8	18.8	100.0

Table 8-28

BGRESEDU Respondent education by PRI4C Overlooking 4C(Resident Child X Neighbour Woman)

BGRESEDU	PRI4C Very strong 1	Strong 2	Medium 3	Weak 4	No overlooking 5	Row Total
1 Primary S			3	4	7	14 / 6.6
2 Secondary S	1	3	13	6	4	27 / 12.7
3 High S	3	13	11	17	12	56 / 26.3
4 Diploma	2	5	5	9	13	34 / 16.0
5 University	3	11	16	13	20	63 / 29.6
6 MS	1	3	2	4	2	12 / 5.6
7 Ph.D.		1				1 / .5
9 Illiterate		2		4		6 / 2.8
Column Total	10 / 4.7	38 / 17.8	50 / 23.5	57 / 26.8	58 / 27.2	213 / 100.0

Table 8-29

BGRESEDU Respondent education by PRI2B Overlooking 2B(Resident Old man X Neighbour Old man)

BGRESEDU	PRI2B Very strong 1	Strong 2	Medium 3	Weak 4	No overlooking 5	Row Total
1 Primary S	1	4	5	3	1	14 / 6.6
2 Secondary S	1	10	14	2		27 / 12.7
3 High S	9	22	23	2		56 / 26.3
4 Diploma	7	18	6	3		34 / 16.0
5 University	6	27	20	9	1	63 / 29.6
6 MS	3	4	5			12 / 5.6
7 Ph.D.			1			1 / .5
9 Illiterate		2	4			6 / 2.8
Column Total	27 / 12.7	87 / 40.8	78 / 36.6	19 / 8.9	2 / .9	213 / 100.0

Table 8-30

PRI1A Overlooking 1A(Resident Man X Neighbour man) by FINDINCO Analysed income group

PRI1A	FINDINCO Low (1)	Middle (2)	High (3)	Row Total
1 Very strong	11	62	11	84 / 39.4
2 Strong	16	84	6	106 / 49.8
3 Medium	3	16	3	22 / 10.3
4 Weak			1	1 / .5
Column Total	30 / 14.1	162 / 76.1	21 / 9.9	213 / 100.0

Table 8-31

PRI2B Overlooking 2B(Resident Old man X Neighbour Old man) by FINDINCO Analysed income group

PRI2B Count	FINDINCO Low (1)	Middle (2)	High (3)	Row Total
1 Very strong	2	21	4	27 / 12.7
2 Strong	8	72	7	87 / 40.8
3 Medium	16	54	8	78 / 36.6
4 Weak	4	14	1	19 / 8.9
5 No overlooking		1	1	2 / .9
Column Total	30 / 14.1	162 / 76.1	21 / 9.9	213 / 100.0

Table 8-32

PRI3D Overlooking 3D(Resident Woman X Neighbour Child) by FINDINCO Analysed income group

PRI3D Count	FINDINCO Low (1)	Middle (2)	High (3)	Row Total
1 Very strong		15	3	18 / 8.5
2 Strong	4	30	2	36 / 16.9
3 Medium	8	47	9	64 / 30.0
4 Weak	4	46	5	55 / 25.8
5 No overlooking	14	24	2	40 / 18.8
Column Total	30 / 14.1	162 / 76.1	21 / 9.9	213 / 100.0

Table 8-33

PRI3D Overlooking 3D(Resident Woman X Neighbour Child) by CITY Location

PRI3D	CITY: Riyadh (1)	Tabuk (2)	Haqil (3)	Row Total
1 Very strong	10	8		18 / 8.5
2 Strong	25	10	1	36 / 16.9
3 Medium	46	14	4	64 / 30.0
4 Weak	24	17	14	55 / 25.8
5 No overlooking	17	12	11	40 / 18.8
Column Total	122 / 57.3	61 / 28.6	30 / 14.1	213 / 100.0

Table 8-34

PRI4C Overlooking 4C(Resident Child X Neighbour Woman) by CITY Location

PRI4C	CITY: Riyadh (1)	Tabuk (2)	Haqil (3)	Row Total
1 Very strong	5	5		10 / 4.7
2 Strong	26	11	1	38 / 17.8
3 Medium	27	13	10	50 / 23.5
4 Weak	30	12	15	57 / 26.8
5 No overlooking	34	20	4	58 / 27.2
Column Total	122 / 57.3	61 / 28.6	30 / 14.1	213 / 100.0

Table 8-35

PRI2A Overlooking 2A(Resident Old man X Neighbour Man) by CITY Location

PRI2A	CITY: Riyadh (1)	Tabuk (2)	Haqil (3)	Row Total
1 Very strong	28	15	3	46 / 21.6
2 Strong	65	28	21	114 / 53.5
3 Medium	18	17	6	41 / 19.2
4 Weak	11	1		12 / 5.6
Column Total	122 / 57.3	61 / 28.6	30 / 14.1	213 / 100.0

Table 8-36

PRI1A Overlooking 1A(Resident Man X Neighbour Ma) by BGRESCO1 No. of countries visited

PRI1A	BGRESCO1 0	1	2	3	4	5	inapplicable 9	Row Total
1 Very strong	24	19	20	12	6	2	1	84 / 39.4
2 Strong	30	27	31	10	5		3	106 / 49.8
3 Medium	3	9	6	4				22 / 10.3
4 Weak	1							1 / .5
Column Total	58 / 27.2	55 / 25.8	57 / 26.8	26 / 12.2	11 / 5.2	2 / .9	4 / 1.9	213 / 100.0

Table 8-37

PRI1B Overlooking 1B(Resident Man X Neighbour Old man) by BGRESCO1 No. of countries visited

PRI1B	BGRESCO1 0	1	2	3	4	5	Inapplicable 9	Row Total
1 Very strong	13	9	9	6	3			40 / 18.8
2 Strong	25	30	33	13	5		3	109 / 51.2
3 Medium	18	12	14	6	3	2	1	56 / 26.3
4 Weak	2	4	1	1				8 / 3.8
Column Total	58 / 27.2	55 / 25.8	57 / 26.8	26 / 12.2	11 / 5.2	2 / .9	4 / 1.9	213 / 100.0

Table 8-38

PRI3D Overlooking 3D(Resident woman X Neighbour Child) by BGRESCO1 No. of countries visited

PRI3D	BGRESCO1 0	1	2	3	4	5	Inapplicable 9	Row Total
1 Very strong	6	4	4	2	2			18 / 8.5
2 Strong	6	10	12	5	3			36 / 16.9
3 Medium	18	11	20	8	3	2	2	64 / 30.0
4 Weak	10	19	14	8	2		2	55 / 25.8
5 No overlooking	18	11	7	3	1			40 / 18.8
Column Total	58 / 27.2	55 / 25.8	57 / 26.8	26 / 12.2	11 / 5.2	2 / .9	4 / 1.9	213 / 100.0

Table 8-39

PRI3D Overlooking 3D(Resident Woman X Neighbour Child) by AREAM2 Lot area m2

PRI3D	AREAM2 <450 (1)	450-600 (2)	601-900 (3)	901-1500 (4)	>1500 (5)	Row Total
1 Very strong	1		14	2	1	18 / 8.5
2 Strong	8	3	24		1	36 / 16.9
3 Medium	28	4	31	1		64 / 30.0
4 Weak	22	5	25	3		55 / 25.8
5 No overlooking	15	8	15	2		40 / 18.8
Column Total	74 / 34.7	20 / 9.4	109 / 51.2	8 / 3.8	2 / .9	213 / 100.0

Table 8-40

PRI4C Overlooking 4C(Resident Child X Neighbour Woman) by AREAM2 Lot area m2

PRI4C	AREAM2 <450 (1)	450-600 (2)	601-900 (3)	901-1500 (4)	>1500 (5)	Row Total
1 Very strong	1		8	1		10 / 4.7
2 Strong	4	3	29		2	38 / 17.8
3 Medium	29	2	17	2		50 / 23.5
4 Weak	26	6	24	1		57 / 26.8
5 No overlooking	14	9	31	4		58 / 27.2
Column Total	74 / 34.7	20 / 9.4	109 / 51.2	8 / 3.8	2 / .9	213 / 100.0

Table 8-41

PRI1A Overlooking 1A(Resident Man X Neighbour Man) by AREAM2 Lot area m2

PRI1A	AREAM2 <450 (1)	450-600 (2)	601-900 (3)	901-1500 (4)	>1500 (5)	Row Total
1 Very strong	26	6	45	5	2	84 / 39.4
2 Strong	41	11	52	2		106 / 49.8
3 Medium	7	3	11	1		22 / 10.3
4 Weak			1			1 / .5
Column Total	74 / 34.7	20 / 9.4	109 / 51.2	8 / 3.8	2 / .9	213 / 100.0

Table 8-42

PRI2B Overlooking 2B(Resident Old man X Neighbour Old man) by EXTRAF.H Height of Extra Fence

	EXTRAF.H 1m-2m (2)	>2m<3m (3)	3m&> (4)	Plane to Add (5)	Horizon. cover (6)	Horizon. cover (7)	Inapplicable (9)	Row Total
PRI2B 1 Very strong	2	7	4	1	4		9	27
								12.7
2 Strong	15	20	7	6	4	4	31	87
								40.8
3 Medium	19	8	6	6	6	1	32	78
								36.6
4 Weak	1	2	3	1	3	1	8	19
								8.9
5 No overlooking					1	1		2
								.9
Column Total	37	37	20	14	18	7	80	213
	17.4	17.4	9.4	6.6	8.5	3.3	37.6	100.0

Table 8-43

PRI4C Overlooking 4C(Resident Child X Neighbour Woman) by EXTRAF.H Height of Extra Fence

	EXTRAF.H 1m-2m (2)	>2m<3m (3)	3m&> (4)	Plane to Add (5)	Horizon. cover (6)	Horizon. cover (7)	Inapplicable (9)	Row Total
PRI4C 1 Very strong	1	2	3	1	1		2	10
								4.7
2 Strong	4	5	7	2	1	3	16	38
								17.8
3 Medium	17	10	3		6	1	13	50
								23.5
4 Weak	8	10	4	4	5	1	25	57
								26.8
5 No overlooking	7	10	3	7	5	2	24	58
								27.2
Column Total	37	37	20	14	18	7	80	213
	17.4	17.4	9.4	6.6	8.5	3.3	37.6	100.0

Table 8-44

PRI2A Overlooking 2A(Resident Old man X Neighbour Man) by EXTRAF.H Height of Extra Fence

Count	EXTRAF.H 1m-2m (2)	>2m<3m (3)	3m&> (4)	Plane to Add (5)	Horizon. cover (6)	Horizon. cover (7)	Inapplicable (9)	Row Total
PRI2A 1 Very strong	7	11	5	3	4	1	15	46
								21.6
2 Strong	23	20	12	5	8	4	42	114
								53.5
3 Medium	6	6	3	5	3		18	41
								19.2
4 Weak	1			1	3	2	5	12
								5.6
Column Total	37	37	20	14	18	7	80	213
	17.4	17.4	9.4	6.6	8.5	3.3	37.6	100.0

Table 8-45

E.F.RS1 Reason for erecting the extra fence

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	10	4.7	4.7	4.7
Protection from overlooking	1	123	57.7	57.7	62.4
Inapplicable	9	80	37.6	37.6	100.0
	Total	213	100.0	100.0	

Table 8-46

E.F.RS2 Reason for erecting the extra fence

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	91	42.7	42.7	42.7
Protection from children	2	1	.5	.5	43.2
Shade for parking	3	8	3.8	3.8	46.9
Increase freedom in	4	14	6.6	6.6	53.5
Shade for yard and p	5	18	8.5	8.5	62.0
Inapplicable	9	81	38.0	38.0	100.0
	Total	213	100.0	100.0	

Table 8-47

RECNOVR Resident's reaction to overlooking neighbour (first reaction)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Not bothered and will stay	1	2	.9	.9	.9
Bothered but will stay	2	22	10.3	10.3	11.3
Bothered but will stay+react	3	157	73.7	73.7	85.0
Bothered and will not stay	4	32	15.0	15.0	100.0
	Total	213	100.0	100.0	

Table 8-48

REACT Bothered resident's reaction to overlooking (second reaction)

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	27	12.7	12.7	12.7
Built extra fence	1	8	3.8	3.8	16.4
Talk to neighbour	2	76	35.7	35.7	52.1
Warn neighbour	3	40	18.8	18.8	70.9
Talk to N. then put	4	36	16.9	16.9	87.8
Stare at N. to aknow	5	2	.9	.9	88.7
Inapplicable	9	24	11.3	11.3	100.0
	Total	213	100.0	100.0	

Table 8-49

FINDINCO Analysed income group by RECNOVR Resident's reaction to overlooking neighb

FINDINCO	Count / Row Pct	RECNOVR not bothered and will 1	Bothered but will 2	Bothered but will 3	Bothered and will 4	Row Total
1 Low			26	4		30
			86.7	13.3		14.1
2 Middle		1	18	121	22	162
		.6	11.1	74.7	13.6	76.1
3 High		1	4	10	6	21
		4.8	19.0	47.6	28.6	9.9
Column Total		2	22	157	32	213
		.9	10.3	73.7	15.0	100.0

Table 8-50

FINDINCO Analysed income group by REACT Bothered resident's reaction to overlook

FINDINCO	Count / Row Pct	REACT 0 Built extra	1 Talk to fence	2 Warn neighbour	3 Talk to neighbour	4 Stare at N. then	5 Inapplic N. to	9 Inapplicable	Row Total
1 Low		4	2	11	3	10			30
		13.3	6.7	36.7	10.0	33.3			14.1
2 Middle		20	5	59	35	23	2	18	162
		12.3	3.1	36.4	21.6	14.2	1.2	11.1	76.1
3 High		3	1	6	2	3		6	21
		14.3	4.8	28.6	9.5	14.3		28.6	9.9
Column Total		27	8	76	40	36	2	24	213
		12.7	3.8	35.7	18.8	16.9	.9	11.3	100.0

Table 8-51

BGRESEDU Respondent education by RECNOVR Resident's reaction to overlooking neighb

BGRESEDU	Count / Row Pct	RECNOVR 1 Not bothered and wi	2 Bothered but wil	3 Bothered but wil	4 Bothered and wil	Row Total
1 Primary S			2	10	2	14
			14.3	71.4	14.3	6.6
2 Secondary S			1	24	2	27
			3.7	88.9	7.4	12.7
3 High S			4	46	6	56
			7.1	82.1	10.7	26.3
4 Diploma			6	21	7	34
			17.6	61.8	20.6	16.0
5 University		2	8	40	13	63
		3.2	12.7	63.5	20.6	29.6
6 MS			1	9	2	12
			8.3	75.0	16.7	5.6
7 Ph.D.				1		1
				100.0		.5
9 Illiterate				6		6
				100.0		2.8
Column Total		2	22	157	32	213
		.9	10.3	73.7	15.0	100.0

Table 8-52

BGRESEDU Respondent education by REACT Bothered resident's reaction to overlook

BGRESEDU	Count / Row Pct	REACT 0 Built extra	1 Talk to fence	2 Warn neighbour	3 Talk to neighbour	4 Stare at N. then	5 N. to	9 Inapplicable	Row Total
1 Primary S	Count	3		6	3	1		1	14
	Row Pct	21.4		42.9	21.4	7.1		7.1	6.6
2 Secondary S	Count	4		13	4	6			27
	Row Pct	14.8		48.1	14.8	22.2			12.7
3 High S	Count	5		22	13	12		4	56
	Row Pct	8.9		39.3	23.2	21.4		7.1	26.3
4 Diploma	Count	7	1	7	5	9		5	34
	Row Pct	20.6	2.9	20.6	14.7	26.5		14.7	16.0
5 University	Count	8	3	20	13	6	1	12	63
	Row Pct	12.7	4.8	31.7	20.6	9.5	1.6	19.0	29.6
6 MS	Count		1	5	2	1	1	2	12
	Row Pct		8.3	41.7	16.7	8.3	8.3	16.7	5.6
7 Ph.D.	Count			1					1
	Row Pct			100.0					.5
9 Illiterate	Count		3	2		1			6
	Row Pct		50.0	33.3		16.7			2.8
	Column Total	27 / 12.7	8 / 3.8	76 / 35.7	40 / 18.8	36 / 16.9	2 / .9	24 / 11.3	213 / 100.0

Table 8-53

BGRESAG Respondent age by RECNOVR Resident's reaction to overlooking neighbour

BGRESAG	Count / Row Pct	RECNOVR 1 Not bothered and with	2 Bothered but with	3 Bothered but with	4 Bothered and with	Row Total
1 <20	Count			3		3
	Row Pct			100.0		1.4
2 20-30	Count		7	56	8	71
	Row Pct		9.9	78.9	11.3	33.3
3 31-40	Count	2	10	66	22	100
	Row Pct	2.0	10.0	66.0	22.0	46.9
4 41-50	Count		4	24	2	30
	Row Pct		13.3	80.0	6.7	14.1
5 >50	Count		1	8		9
	Row Pct		11.1	88.9		4.2
	Column Total	2 / .9	22 / 10.3	157 / 73.7	32 / 15.0	213 / 100.0

Table 8-54

BGRESAG Respondent age by REACT Bothered resident's reaction to overlook

BGRESAG	Count / Row Pct	REACT 0 Built ex tra fence	1 Talk to neighbou r	2 Warn ne ighbour	3 Talk to N. then	4 Stare at N. to	5 Inapplic able	9	Row Total
1 <20				3					3
				100.0					1.4
2 20-30		10	2	26	16	15		2	71
		14.1	2.8	36.6	22.5	21.1		2.8	33.3
3 31-40		15	3	29	16	18	1	18	100
		15.0	3.0	29.0	16.0	18.0	1.0	18.0	46.9
4 41-50		2	1	13	7	3	1	3	30
		6.7	3.3	43.3	23.3	10.0	3.3	10.0	14.1
5 >50			2	5	1			1	9
			22.2	55.6	11.1			11.1	4.2
	Column Total	27 12.7	8 3.8	76 35.7	40 18.8	36 16.9	2 .9	24 11.3	213 100.0

Table 8-55

BGRESCO1 No. of countries visited by RECNOVR Resident's reaction to overlooking neighbour

BGRESCO1	Count / Row Pct	RECNOVR 1 Not bothere d and wi	2 Bothered but wil	3 Bothered but wil	4 Bothered and wil	Row Total
0		1	4	44	9	58
		1.7	6.9	75.9	15.5	27.2
1		1	7	40	7	55
		1.8	12.7	72.7	12.7	25.8
2			5	44	8	57
			8.8	77.2	14.0	26.8
3			4	19	3	26
			15.4	73.1	11.5	12.2
4			2	6	3	11
			18.2	54.5	27.3	5.2
5					2	2
					100.0	.9
9 Inapplicable				4		4
				100.0		1.9
	Column Total	2 .9	22 10.3	157 73.7	32 15.0	213 100.0

Table 8-56

BGRESCO1 No. of countries visited by REACT Bothered resident's reaction to overlook

BGRESCO1	Count / Row Pct	REACT: Built ex tra 0	Talk to fence 1	Warn ne neighbou 2	Talk to ighbour 3	Stare at N. then 4	Inapplic N. to 5	able 9	Row Total
0		6	3	22	9	12		6	58
		10.3	5.2	37.9	15.5	20.7		10.3	27.2
1		10	1	19	13	8		4	55
		18.2	1.8	34.5	23.6	14.5		7.3	25.8
2		7	3	20	9	11	1	6	57
		12.3	5.3	35.1	15.8	19.3	1.8	10.5	26.8
3		3	1	7	8	4		3	26
		11.5	3.8	26.9	30.8	15.4		11.5	12.2
4		1		4	1	1	1	3	11
		9.1		36.4	9.1	9.1	9.1	27.3	5.2
5								2	2
								100.0	.9
9 Inapplicable				4					4
				100.0					1.9
	Column Total	27 12.7	8 3.8	76 35.7	40 18.8	36 16.9	2 .9	24 11.3	213 100.0

Table 8-57

BGRESDS Respondent participated in design by RECNOVR Resident's reaction to overlooking

RECNOVR

BGRESDS	Count / Row Pct	Not bothere d and wi 1	Bothered but wil 2	Bothered but wil 3	Bothered and wil 4	Row Total
1 Yes		2	16	92	9	119
		1.7	13.4	77.3	7.6	56.1
2 No			5	65	23	93
			5.4	69.9	24.7	43.9
	Column Total	2 .9	21 9.9	157 74.1	32 15.1	212 100.0

Table 8-58

BGRESDS Respondent participated in design by REACT Bothered resident's reaction to overlook

BGRESDS	Count / Row Pct	REACT: Built ex tra 0	Talk to fence 1	Warn ne neighbou 2	Talk to ighbour 3	Stare at N. then 4	Inapplic N. to 5	able 9	Row Total
1 Yes		13	4	47	21	24		10	119
		10.9	3.4	39.5	17.6	20.2		8.4	56.1
2 No		14	4	28	19	12	2	14	93
		15.1	4.3	30.1	20.4	12.9	2.2	15.1	43.9
	Column Total	27 12.7	8 3.8	75 35.4	40 18.9	36 17.0	2 .9	24 11.3	212 100.0

Table 8-59

BGHOWN House ownership by RECNOVR Resident's reaction to overlooking neighbour

BGHOWN	RECNOVR: Not bothered and wil 1	Bothered but wil 2	Bothered but wil 3	Bothered and wil 4	Row Total
1 Own	2	21	127	26	176
	1.1	11.9	72.2	14.8	82.6
2 Rent		1	30	6	37
		2.7	81.1	16.2	17.4
Column Total	2	22	157	32	213
	.9	10.3	73.7	15.0	100.0

Table 8-60

BGHOWN House ownership by REACT Bothered resident's reaction to overlook

BGHOWN	REACT: Built extra 0	Talk to fence 1	Warn neighbour 2	Talk to neighbour 3	Stare at N. then 4	N. to 5	Inapplicable 9	Row Total
1 Own	27	5	67	31	29		17	176
	15.3	2.8	38.1	17.6	16.5		9.7	82.6
2 Rent		3	9	9	7	2	7	37
		8.1	24.3	24.3	18.9	5.4	18.9	17.4
Column Total	27	8	76	40	36	2	24	213
	12.7	3.8	35.7	18.8	16.9	.9	11.3	100.0

Table 8-61

CITY Location by RECNOVR Resident's reaction to overlooking neighbour

CITY	RECNOVR: Not bothered and wil 1	Bothered but wil 2	Bothered but wil 3	Bothered and wil 4	Row Total
1 Riyadh	1	16	83	22	122
	.8	13.1	68.0	18.0	57.3
2 Tabuk		3	50	8	61
		4.9	82.0	13.1	28.6
3 Haqil	1	3	24	2	30
	3.3	10.0	80.0	6.7	14.1
Column Total	2	22	157	32	213
	.9	10.3	73.7	15.0	100.0

Table 8-62

CITY Location by REACT Bothered resident's reaction to overlook

CITY	REACT: Built extra 0	Talk to fence 1	Warn neighbour 2	Talk to neighbour 3	Stare at N. then 4	N. to 5	Inapplicable 9	Row Total
1 Riyadh	18	5	34	23	20	2	20	122
	14.8	4.1	27.9	18.9	16.4	1.6	16.4	57.3
2 Tabuk	5		30	15	9		2	61
	8.2		49.2	24.6	14.8		3.3	28.6
3 Haqil	4	3	12	2	7		2	30
	13.3	10.0	40.0	6.7	23.3		6.7	14.1
Column Total	27	8	76	40	36	2	24	213
	12.7	3.8	35.7	18.8	16.9	.9	11.3	100.0

Table 8-63

CITY Location by RECNOVR Resident's reaction to overlooking neighbour
AREA Neighbourhood Value = 5 Sulimanya

	RECNOVR		
Count / Row Pct	Bothered but wil 3	Bothered and wil 4	Row Total
CITY 2 Tabuk	23 / 74.2	8 / 25.8	31 / 100.0
Column Total	23 / 74.2	8 / 25.8	31 / 100.0

Table 8-64

CITY Location by REACT Bothered resident's reaction to overlook
AREA Neighbourhood Value = 5 Sulimanya

	REACT					
Count / Row Pct	Talk to neighbou 0	Warn ne ighbour 2	Talk to N. then 3	Inapplic able 4	9	Row Total
CITY 2 Tabuk	2 / 6.5	11 / 35.5	11 / 35.5	5 / 16.1	2 / 6.5	31 / 100.0
Column Total	2 / 6.5	11 / 35.5	11 / 35.5	5 / 16.1	2 / 6.5	31 / 100.0

Table 8-65

CITY Location by RECNOVR Resident's reaction to overlooking neighb
AREA Neighbourhood Value = 6 Nahdha

	RECNOVR		
Count / Row Pct	Bothered but wil 2	Bothered but wil 3	Row Total
CITY 2 Tabuk	3 / 10.0	27 / 90.0	30 / 100.0
Column Total	3 / 10.0	27 / 90.0	30 / 100.0

Table 8-66

CITY Location by REACT Bothered resident's reaction to overlook
AREA Neighbourhood Value = 6 Nahdha
REACT

Count / Row Pct	Talk to neighbou 0	Warn ne ighbour 2	Talk to N. then 3	4	Row Total
CITY 2 Tabuk	3 / 10.0	19 / 63.3	4 / 13.3	4 / 13.3	30 / 100.0
Column Total	3 / 10.0	19 / 63.3	4 / 13.3	4 / 13.3	30 / 100.0

Table 8-67

PRI3D Overlooking 3D(Resident Woman X Neighbour Child) by RECNOVR Resident's reaction to overlooking neighbour

PRI3D	RECNOVR: Not bothered and wi (1)	Bothered but wil (2)	Bothered but wil (3)	Bothered and wil (4)	Row Total
1 Very strong		1 5.6	17 94.4		18 8.5
2 Strong		2 5.6	32 88.9	2 5.6	36 16.9
3 Medium		7 10.9	45 70.3	12 18.8	64 30.0
4 Weak	1 1.8	8 14.5	39 70.9	7 12.7	55 25.8
5 No overlooking	1 2.5	4 10.0	24 60.0	11 27.5	40 18.8
Column Total	2 .9	22 10.3	157 73.7	32 15.0	213 100.0

Table 8-68

PRI3D Overlooking 3D(Resident Woman X Neighbour Child) by REACT Bothered resident's reaction to overlook

PRI3D	REACT: Built ex tra fence (0)	Talk to neighbou (1)	Warn ne ighbour (2)	Talk to N. then (3)	Stare at N. to (4)	Inapplic able (5)	(9)	Row Total
1 Very strong	1 5.6		3 16.7	13 72.2	1 5.6			18 8.5
2 Strong	3 8.3		17 47.2	9 25.0	6 16.7		1 2.8	36 16.9
3 Medium	6 9.4	3 4.7	23 35.9	9 14.1	11 17.2		12 18.8	64 30.0
4 Weak	8 14.5	2 3.6	22 40.0	6 10.9	9 16.4	2 3.6	6 10.9	55 25.8
5 No overlooking	9 22.5	3 7.5	11 27.5	3 7.5	9 22.5		5 12.5	40 18.8
Column Total	27 12.7	8 3.8	76 35.7	40 18.8	36 16.9	2 .9	24 11.3	213 100.0

Table 8-69

PRI1A Overlooking 1A(Resident Man X Neighbour Man) by RECNOVR Resident's reaction to overlooking neighbour

PRI1A	RECNOVR: Not bothered and wi (1)	Bothered but wil (2)	Bothered but wil (3)	Bothered and wil (4)	Row Total
1 Very strong		8 9.5	62 73.8	14 16.7	84 39.4
2 Strong		8 7.5	85 80.2	13 12.3	106 49.8
3 Medium	1 4.5	6 27.3	10 45.5	5 22.7	22 10.3
4 Weak	1 100.0				1 .5
Column Total	2 .9	22 10.3	157 73.7	32 15.0	213 100.0

Table 8-70

PRI1A Overlooking 1A(Resident Man X Neighbour Man) by REACT Bothered resident's reaction to overlook

PRI1A / Row Pct	REACT: Built ex tra fence 0	Talk to neighbou 1	Warn ne ighbour 2	Talk to N. then 3	Stare at N. to 4	Inapplic able 5	9	Row Total
1 Very strong	7	7	21	20	16		13	84
	8.3	8.3	25.0	23.8	19.0		15.5	39.4
2 Strong	12	1	51	16	18	2	6	106
	11.3	.9	48.1	15.1	17.0	1.9	5.7	49.8
3 Medium	8		4	4	2		4	22
	36.4		18.2	18.2	9.1		18.2	10.3
4 Weak							1	1
							100.0	.5
Column Total	27	8	76	40	36	2	24	213
	12.7	3.8	35.7	18.8	16.9	.9	11.3	100.0

Table 8-71

PRI4C Overlooking 4C(Resident Child X Neighbour Woman) by RECNOVR Resident's reaction to overlooking neighbour

PRI4C / Row Pct	RECNOVR: Not bothere d and wi 1	Bothered but wil 2	Bothered but wil 3	Bothered and wil 4	Row Total
1 Very strong		1	9		10
		10.0	90.0		4.7
2 Strong			38		38
			100.0		17.8
3 Medium	1	5	40	4	50
	2.0	10.0	80.0	8.0	23.5
4 Weak		8	38	11	57
		14.0	66.7	19.3	26.8
5 No overlooking	1	8	32	17	58
	1.7	13.8	55.2	29.3	27.2
Column Total	2	22	157	32	213
	.9	10.3	73.7	15.0	100.0

Table 8-72

PRI4C Overlooking 4C(Resident Child X Neighbour Woman) by REACT Bothered resident's reaction to overlook

PRI4C / Row Pct	REACT: Built ex tra fence 0	Talk to neighbou 1	Warn ne ighbour 2	Talk to N. then 3	Stare at N. to 4	Inapplic able 5	9	Row Total
1 Very strong			2	8				10
			20.0	80.0				4.7
2 Strong	1		21	10	6			38
	2.6		55.3	26.3	15.8			17.8
3 Medium	6		20	11	11		2	50
	12.0		40.0	22.0	22.0		4.0	23.5
4 Weak	6	5	19	7	10		10	57
	10.5	8.8	33.3	12.3	17.5		17.5	26.8
5 No overlooking	14	3	14	4	9	2	12	58
	24.1	5.2	24.1	6.9	15.5	3.4	20.7	27.2
Column Total	27	8	76	40	36	2	24	213
	12.7	3.8	35.7	18.8	16.9	.9	11.3	100.0

Table 8-73

AREAM2 Lot area m2 by RECNOVR Resident's reaction to overlooking neighbour

AREAM2	RECNOVR Not bothered and wi 1	Bothered but wil 2	Bothered but wil 3	Bothered and wil 4	Row Total
1 <450		8 10.8	62 83.8	4 5.4	74 34.7
2 450-600		2 10.0	13 65.0	5 25.0	20 9.4
3 601-900	2 1.8	10 9.2	76 69.7	21 19.3	109 51.2
4 901-1500		2 25.0	4 50.0	2 25.0	8 3.8
5 >1500			2 100.0		2 .9
Column Total	2 .9	22 10.3	157 73.7	32 15.0	213 100.0

Table 8-74

AREAM2 Lot area m2 by REACT Bothered resident's reaction to overlook

AREAM2	REACT Built ex tra 0	Talk to fence 1	Warn ne neighbou 2	Talk to ighbour 3	Stare at N. then 4	Inapplic N. to 5	able 9	Row Total
1 <450	8 10.8	3 4.1	29 39.2	18 24.3	12 16.2		4 5.4	74 34.7
2 450-600	5 25.0	1 5.0	8 40.0	2 10.0	2 10.0		2 10.0	20 9.4
3 601-900	12 11.0	4 3.7	34 31.2	19 17.4	20 18.3	2 1.8	18 16.5	109 51.2
4 901-1500	2 25.0		4 50.0	1 12.5	1 12.5			8 3.8
5 >1500			1 50.0		1 50.0			2 .9
Column Total	27 12.7	8 3.8	76 35.7	40 18.8	36 16.9	2 .9	24 11.3	213 100.0

Table 8-75

EXTRAF.H Height of Extra Fence by RECNOVR Resident's reaction to overlooking neighbour

EXTRAF.H	RECNOVR 1 Not bothered and wi	2 Bothered but wil	3 Bothered but wil	4 Bothered and wil	Row Total
2 1m-2m	1 2.7	3 8.1	26 70.3	7 18.9	37 17.4
3 >2m<3m		1 2.7	31 83.8	5 13.5	37 17.4
4 3m&>			20 100.0		20 9.4
5 Plane to Add		2 14.3	11 78.6	1 7.1	14 6.6
6 Horizontal cover	1 5.6	4 22.2	9 50.0	4 22.2	18 8.5
7 Horizontal cover		2 28.6	5 71.4		7 3.3
9 Inapplicable		10 12.5	55 68.8	15 18.8	80 37.6
Column Total	2 .9	22 10.3	157 73.7	32 15.0	213 100.0

Table 8-76

EXTRAF.H Height of Extra Fence by REACT Bothered resident's reaction to overlook

EXTRAF.H	REACT 0 Built ex tra fence	1 Talk to neighbou	2 Warn ne ighbour	3 Talk to N. then	4 Stare at N. to	5 Inapplic able	9	Row Total
2 1m-2m	5 13.5		11 29.7	6 16.2	11 29.7	2 5.4	2 5.4	37 17.4
3 >2m<3m	5 13.5	4 10.8	11 29.7	10 27.0	7 18.9			37 17.4
4 3m&>		1 5.0	5 25.0	10 50.0	4 20.0			20 9.4
5 Plane to Add			5 35.7	2 14.3	4 28.6		3 21.4	14 6.6
6 Horizontal cover	1 5.6		6 33.3	2 11.1	2 11.1		7 38.9	18 8.5
7 Horizontal cover	1 14.3		2 28.6		3 42.9		1 14.3	7 3.3
9 Inapplicable	15 18.8	3 3.8	36 45.0	10 12.5	5 6.3		11 13.8	80 37.6
Column Total	27 12.7	8 3.8	76 35.7	40 18.8	36 16.9	2 .9	24 11.3	213 100.0

Table 8-77

UNUSFY not useful yards by RECNOVR Resident's reaction to overlooking neighbour

UNUSFY	RECNOVR Not bothered and wi 1	Bothered but wil 2	Bothered but wil 3	Bothered and wil 4	Row Total
1 specified yards	2 / 1.2	16 / 9.7	116 / 70.3	31 / 18.8	165 / 77.5
2 all yards		4 / 16.0	21 / 84.0		25 / 11.7
3 none of the yard		2 / 8.7	20 / 87.0	1 / 4.3	23 / 10.8
Column Total	2 / .9	22 / 10.3	157 / 73.7	32 / 15.0	213 / 100.0

Table 8-78

UNUSFY not useful yards by REACT Bothered resident's reaction to overlook

UNUSFY	REACT Built ex tra 0	Talk to fence 1	Warn ne neighbou 2	Talk to ighbour 3	Stare at N. then 4	Inapplic N. to 5	able 9	Row Total
1 specified yards	22 / 13.3	7 / 4.2	56 / 33.9	25 / 15.2	30 / 18.2	2 / 1.2	23 / 13.9	165 / 77.5
2 all yards	3 / 12.0	1 / 4.0	12 / 48.0	5 / 20.0	3 / 12.0		1 / 4.0	25 / 11.7
3 none of the yard	2 / 8.7		8 / 34.8	10 / 43.5	3 / 13.0			23 / 10.8
Column Total	27 / 12.7	8 / 3.8	76 / 35.7	40 / 18.8	36 / 16.9	2 / .9	24 / 11.3	213 / 100.0

Chapter 9

Table 9-1

RSBUSB1 Reason for building with setback

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	1	.5	.5	.5
Providing space for	1	13	6.1	6.1	6.6
Municipality regulat	2	95	44.6	44.6	51.2
Security reasons	3	8	3.8	3.8	54.9
House ventilation	4	53	24.9	24.9	79.8
Provide gardens	5	40	18.8	18.8	98.6
Prevent noise from N	6	3	1.4	1.4	100.0
	Total	213	100.0	100.0	

Table 9-2

RSBUSB2 Reason for building with setback

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	60	28.2	28.2	28.2
Providing space for	1	20	9.4	9.4	37.6
Municipality regulat	2	51	23.9	23.9	61.5
Security reasons	3	3	1.4	1.4	62.9
House ventilation	4	42	19.7	19.7	82.6
Provide gardens	5	27	12.7	12.7	95.3
Car parking&access to	6	10	4.7	4.7	100.0
	Total	213	100.0	100.0	

Table 9-3

SBREGUL Required setback regulations

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	3	1.4	1.4	1.4
Knows exact requirm.	1	89	41.8	41.8	43.2
Knows about setback	2	114	53.5	53.5	96.7
Don't know	4	7	3.3	3.3	100.0
	Total	213	100.0	100.0	

Table 9-4

SBREGUL Required setback regulations

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	3	4.5	4.5	4.5
Knows exact requirm.	1	12	17.9	17.9	22.4
Knows about setback	2	45	67.2	67.2	89.6
Don't know	4	7	10.4	10.4	100.0
	Total	67	100.0	100.0	

Table 9-5

MODEL Chosen model

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Villa	1	69	32.4	32.4	32.4
C/Y Villa	2	79	37.1	37.1	69.5
C/Y attached house	3	65	30.5	30.5	100.0
	Total	213	100.0	100.0	

Table 9-6

SBPRI Setback requirements have

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
Increased overlooking	2	203	95.3	95.3	95.3
Didn't affect	3	10	4.7	4.7	100.0
	Total	213	100.0	100.0	

Table 9-7

VILLCY Is courtyard H. exposed less to overlook

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	3	1.4	1.4	1.4
Yes	1	155	72.8	72.8	74.2
Yes, but	4	55	25.8	25.8	100.0
	Total	213	100.0	100.0	

Table 9-8

VILLCYM Yes, but

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	159	74.6	74.6	74.6
get security problem	1	15	7.0	7.0	81.7
house will be enclos	2	15	7.0	7.0	88.7
Setback better for v	3	20	9.4	9.4	98.1
but with large lot a	4	4	1.9	1.9	100.0
	Total	213	100.0	100.0	

Table 9-9

VILLCY Is courtyard H. exposed less to overlook by MODEL Chosen model

VILLCY	Count / Row Pct / Col Pct	MODEL 1 Villa	2 C/Y Vill	3 C/Y attached hou	Row Total
0		2		1	3
		66.7		33.3	1.4
		2.9		1.5	
1 Yes		39	56	60	155
		25.2	36.1	38.7	72.8
		56.5	70.9	92.3	
4 Yes, but		28	23	4	55
		50.9	41.8	7.3	25.8
		40.6	29.1	6.2	
Column Total		69	79	65	213
		32.4	37.1	30.5	100.0

Table 9-10

MODELM1 Model modifications

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	127	59.6	59.6	59.6
Provide semi-courts	1	4	1.9	1.9	61.5
Two sides setback on	2	16	7.5	7.5	69.0
openings to one/two	3	3	1.4	1.4	70.4
Building with no set	4	15	7.0	7.0	77.5
Setback from street	5	6	2.8	2.8	80.3
No setback from one	6	15	7.0	7.0	87.3
Provide large lot	7	24	11.3	11.3	98.6
Increase fence heig.	10	3	1.4	1.4	100.0
	Total	213	100.0	100.0	

Table 9-11

MODELM2 Model modifications

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	0	197	92.5	92.5	92.5
Two sides setback on	2	7	3.3	3.3	95.8
Setback from one sid	4	6	2.8	2.8	98.6
Make windows prevent	5	3	1.4	1.4	100.0
	Total	213	100.0	100.0	

Table 9-12

MODELM1 Model modifications by MODEL Chosen model

MODELM1	MODEL 1 Villa	2 C/Y Village	3 C/Y attached hou	Row Total
0	55	65	7	127
	43.3	51.2	5.5	59.6
	79.7	82.3	10.8	
1 Provide semi-cou	2		2	4
	50.0		50.0	1.9
	2.9		3.1	
2 Two sides setbac		1	15	16
		6.3	93.8	7.5
		1.3	23.1	
3 openings to one/		1	2	3
		33.3	66.7	1.4
		1.3	3.1	
4 Building with no		1	14	15
		6.7	93.3	7.0
		1.3	21.5	
5 Setback from str			6	6
			100.0	2.8
			9.2	
6 No setback from	2	1	12	15
	13.3	6.7	80.0	7.0
	2.9	1.3	18.5	
7 Provide large lo	7	10	7	24
	29.2	41.7	29.2	11.3
	10.1	12.7	10.8	
10 Increase fence h	3			3
	100.0			1.4
	4.3			
Column Total	69	79	65	213
	32.4	37.1	30.5	100.0

Table 9-13

MODELM2 Model modifications by MODEL Chosen model

Page 1 of 1

MODELM2	MODEL 1 Villa	2 C/Y Village	3 C/Y attached hou	Row Total
0	66	79	52	197
	33.5	40.1	26.4	92.5
	95.7	100.0	80.0	
2 Two sides setbac			7	7
			100.0	3.3
			10.8	
4 Setback from one			6	6
			100.0	2.8
			9.2	
5 Make windows pre	3			3
	100.0			1.4
	4.3			
Column Total	69	79	65	213
	32.4	37.1	30.5	100.0

Table 9-14

RSBUSB1 Reason for building with setback by FINDINCO Analysed income group

RSBUSB1	FINDINCO Low (1)	Middle (2)	High (3)	Row Total
0		1		1
		100.0		.5
		.6		
1	2	8	3	13
Providing space	15.4	61.5	23.1	6.1
	6.7	4.9	15.0	
2	11	77	7	95
Municipality reg	11.6	81.1	7.4	44.6
	36.7	47.2	35.0	
3	1	5	2	8
Security reasons	12.5	62.5	25.0	3.8
	3.3	3.1	10.0	
4	11	40	2	53
House ventilatio	20.8	75.5	3.8	24.9
	36.7	24.5	10.0	
5	3	31	6	40
Provide gardens	7.5	77.5	15.0	18.8
	10.0	19.0	30.0	
6	2	1		3
Prevent noise fr	66.7	33.3		1.4
	6.7	.6		
Column Total	30 14.1	163 76.5	20 9.4	213 100.0

Table 9-15

RSBUSB2 Reason for building with setback by FINDINCO Analysed income group

RSBUSB2	FINDINCO Low (1)	Middle (2)	High (3)	Row Total
0	10	48	2	60
	16.7	80.0	3.3	28.2
	33.3	29.4	10.0	
1	1	14	5	20
Providing space	5.0	70.0	25.0	9.4
	3.3	8.6	25.0	
2	7	40	4	51
Municipality reg	13.7	78.4	7.8	23.9
	23.3	24.5	20.0	
3	1	2		3
Security reasons	33.3	66.7		1.4
	3.3	1.2		
4	7	30	5	42
House ventilatio	16.7	71.4	11.9	19.7
	23.3	18.4	25.0	
5	1	24	2	27
Provide gardens	3.7	88.9	7.4	12.7
	3.3	14.7	10.0	
6	3	5	2	10
Car parking&acce	30.0	50.0	20.0	4.7
	10.0	3.1	10.0	
Column Total	30 14.1	163 76.5	20 9.4	213 100.0

Table 9-16

SBREGUL Required setback regulations by FINDINCO Analysed income group

SBREGUL	FINDINCO Low (1)	Middle (2)	High (3)	Row Total
0		2	1	3
		66.7	33.3	1.4
		1.2	5.0	
1 Knows exact req	14	69	6	89
	15.7	77.5	6.7	41.8
	46.7	42.3	30.0	
2 Knows about setb	13	88	13	114
	11.4	77.2	11.4	53.5
	43.3	54.0	65.0	
4 Don't know	3	4		7
	42.9	57.1		3.3
	10.0	2.5		
Column Total	30	163	20	213
	14.1	76.5	9.4	100.0

Table 9-17

MODEL Chosen model by FINDINCO Analysed income group

MODEL	FINDINCO Low (1)	Middle (2)	High (3)	Row Total
1 Villa	14	46	9	69
	20.3	66.7	13.0	32.4
	46.7	28.2	45.0	
2 C/Y Villa	7	68	4	79
	8.9	86.1	5.1	37.1
	23.3	41.7	20.0	
3 C/Y attached hou	9	49	7	65
	13.8	75.4	10.8	30.5
	30.0	30.1	35.0	
Column Total	30	163	20	213
	14.1	76.5	9.4	100.0

Table 9-18

MODELM1 Model modifications by FINDINCO Analysed income group

MODELM1	Count / Row Pct / Col Pct	FINDINCO Low (1)	Middle (2)	High (3)	Row Total
0		20	95	12	127
		15.7	74.8	9.4	59.6
		66.7	58.3	60.0	
1 Provide semi-cou			3	1	4
			75.0	25.0	1.9
			1.8	5.0	
2 Two sides setbac			14	2	16
			87.5	12.5	7.5
			8.6	10.0	
3 openings to one/			3		3
			100.0		1.4
			1.8		
4 Building with no		3	12		15
		20.0	80.0		7.0
		10.0	7.4		
5 Setback from str		2	3	1	6
		33.3	50.0	16.7	2.8
		6.7	1.8	5.0	
6 No setback from		1	10	4	15
		6.7	66.7	26.7	7.0
		3.3	6.1	20.0	
7 Provide large lo		4	20		24
		16.7	83.3		11.3
		13.3	12.3		
10 Increase fence h			3		3
			100.0		1.4
			1.8		
Column Total		30 14.1	163 76.5	20 9.4	213 100.0

Table 9-19

MODELM2 Model modifications by FINDINCO Analysed income group

MODELM2	Count / Row Pct / Col Pct	FINDINCO Low (1)	Middle (2)	High (3)	Row Total
0		30	148	19	197
		15.2	75.1	9.6	92.5
		100.0	90.8	95.0	
2 Two sides setbac			7		7
			100.0		3.3
			4.3		
4 Setback from one			5	1	6
			83.3	16.7	2.8
			3.1	5.0	
5 Make windows pre			3		3
			100.0		1.4
			1.8		
Column Total		30 14.1	163 76.5	20 9.4	213 100.0

Table 9-20

SBPRI Setback requirements have by FINDINCO Analysed income group

SBPRI	FINDINCO Low (1)	Middle (2)	High (3)	Row Total
2 Increased overlo	28	156	19	203
	13.8	76.8	9.4	95.3
	93.3	95.7	95.0	
3 Didn't affect	2	7	1	10
	20.0	70.0	10.0	4.7
	6.7	4.3	5.0	
Column Total	30	163	20	213
	14.1	76.5	9.4	100.0

Table 9-21

VILLCY Is courtyard H. exposed less to overlook by FINDINCO Analysed income group

VILLCY	FINDINCO Low (1)	Middle (2)	High (3)	Row Total
0		2	1	3
		66.7	33.3	1.4
		1.2	4.8	
1 Yes	24	121	12	157
	15.3	77.1	7.6	73.7
	80.0	74.7	57.1	
4 Yes, but	6	39	8	53
	11.3	73.6	15.1	24.9
	20.0	24.1	38.1	
Column Total	30	162	21	213
	14.1	76.1	9.9	100.0

Table 9-22

SBREGUL Required setback regulations by BGRESEDU Respondent education

SBREGUL	BGRESEDU Primary S (1)	Secondary S (2)	High S (3)	Diploma (4)	University MS (5)	(6)	Ph.D. (7)	Illiterate (9)	Row Total
0			1		2				3
			33.3		66.7				1.4
			1.8		3.2				
1 Knows exact req.	8	14	21	14	22	6		4	89
	9.0	15.7	23.6	15.7	24.7	6.7		4.5	41.8
	57.1	51.9	37.5	41.2	34.9	50.0		66.7	
2 Knows about setb	5	12	31	19	38	6	1	2	114
	4.4	10.5	27.2	16.7	33.3	5.3	.9	1.8	53.5
	35.7	44.4	55.4	55.9	60.3	50.0	100.0	33.3	
4 Don't know	1	1	3	1	1				7
	14.3	14.3	42.9	14.3	14.3				3.3
	7.1	3.7	5.4	2.9	1.6				
Column Total	14	27	56	34	63	12	1	6	213
	6.6	12.7	26.3	16.0	29.6	5.6	.5	2.8	100.0

Table 9-23

RSBUSB1 Reason for building with setback by BGRESEDU Respondent education

RSBUSB1	BGRESEDU Primary S 1	Secondary S 2	High S 3	Diploma 4	University 5	MS 6	Ph.D. 7	Illiterate 9	Row Total
0					1				1
					100.0				.5
					1.6				
1		1	4	1	3	3		1	13
Providing space		7.7	30.8	7.7	23.1	23.1		7.7	6.1
		3.7	7.1	2.9	4.8	25.0		16.7	
2	4	9	26	14	34	6		2	95
Municipality reg	4.2	9.5	27.4	14.7	35.8	6.3		2.1	44.6
	28.6	33.3	46.4	41.2	54.0	50.0		33.3	
3	1	1	1	2	3				8
Security reasons	12.5	12.5	12.5	25.0	37.5				3.8
	7.1	3.7	1.8	5.9	4.8				
4	9	9	12	10	8	2		3	53
House ventilatio	17.0	17.0	22.6	18.9	15.1	3.8		5.7	24.9
	64.3	33.3	21.4	29.4	12.7	16.7		50.0	
5		5	12	7	14	1	1		40
Provide gardens		12.5	30.0	17.5	35.0	2.5	2.5		18.8
		18.5	21.4	20.6	22.2	8.3	100.0		
6		2	1						3
Prevent noise fr		66.7	33.3						1.4
		7.4	1.8						
Column	14	27	56	34	63	12	1	6	213
Total	6.6	12.7	26.3	16.0	29.6	5.6	.5	2.8	100.0

Table 9-24

RSBUSB2 Reason for building with setback by BGRESEDU Respondent education

RSBUSB2	BGRESEDU Primary S 1	Secondary S 2	High S 3	Diploma 4	University 5	MS 6	Ph.D. 7	Illiterate 9	Row Total
0	3	9	12	9	21	4		2	60
	5.0	15.0	20.0	15.0	35.0	6.7		3.3	28.2
	21.4	33.3	21.4	26.5	33.3	33.3		33.3	
1	1	1	6	3	8	1			20
Providing space	5.0	5.0	30.0	15.0	40.0	5.0			9.4
	7.1	3.7	10.7	8.8	12.7	8.3			
2	8	9	12	9	10	1		2	51
Municipality reg	15.7	17.6	23.5	17.6	19.6	2.0		3.9	23.9
	57.1	33.3	21.4	26.5	15.9	8.3		33.3	
3				2	1				3
Security reasons				66.7	33.3				1.4
				5.9	1.6				
4	1	4	14	5	13	3	1	1	42
House ventilatio	2.4	9.5	33.3	11.9	31.0	7.1	2.4	2.4	19.7
	7.1	14.8	25.0	14.7	20.6	25.0	100.0	16.7	
5		2	7	6	9	2		1	27
Provide gardens		7.4	25.9	22.2	33.3	7.4		3.7	12.7
		7.4	12.5	17.6	14.3	16.7		16.7	
6	1	2	5		1	1			10
Car parking&acce	10.0	20.0	50.0		10.0	10.0			4.7
	7.1	7.4	8.9		1.6	8.3			
Column	14	27	56	34	63	12	1	6	213
Total	6.6	12.7	26.3	16.0	29.6	5.6	.5	2.8	100.0

Table 9-25

MODEL Chosen model by BGRESEDU Respondent education

MODEL	Count / Row Pct / Col Pct	BGRESEDU Primary S 1	Secondary S 2	High S 3	Diploma 4	University MS 5	6	Ph.D. 7	Illiterate 9	Row Total
1 Villa		6	9	15	10	20	4		5	69
		8.7	13.0	21.7	14.5	29.0	5.8		7.2	32.4
		42.9	33.3	26.8	29.4	31.7	33.3		83.3	
2 C/Y Villa		3	10	22	15	26	1	1	1	79
		3.8	12.7	27.8	19.0	32.9	1.3	1.3	1.3	37.1
		21.4	37.0	39.3	44.1	41.3	8.3	100.0	16.7	
3 C/Y attached hou		5	8	19	9	17	7			65
		7.7	12.3	29.2	13.8	26.2	10.8			30.5
		35.7	29.6	33.9	26.5	27.0	58.3			
Column Total		14 6.6	27 12.7	56 26.3	34 16.0	63 29.6	12 5.6	1 .5	6 2.8	213 100.0

Table 9-26

MODELM1 Model modifications by BGRESEDU Respondent education

MODELM1	Count / Row Pct / Col Pct	BGRESEDU Primary S 1	Secondary S 2	High S 3	Diploma 4	University MS 5	6	Ph.D. 7	Illiterate 9	Row Total
0		5	16	33	22	43	5		3	127
		3.9	12.6	26.0	17.3	33.9	3.9		2.4	59.6
		35.7	59.3	58.9	64.7	68.3	41.7		50.0	
1 Provide semi-cou					2	1	1			4
					50.0	25.0	25.0			1.9
					5.9	1.6	8.3			
2 Two sides setbac		1		3	2	8	2			16
		6.3		18.8	12.5	50.0	12.5			7.5
		7.1		5.4	5.9	12.7	16.7			
3 openings to one/					1	2				3
					33.3	66.7				1.4
					2.9	3.2				
4 Building with no		1	3	7	2	1	1			15
		6.7	20.0	46.7	13.3	6.7	6.7			7.0
		7.1	11.1	12.5	5.9	1.6	8.3			
5 Setback from str		1	2	1		2				6
		16.7	33.3	16.7		33.3				2.8
		7.1	7.4	1.8		3.2				
6 No setback from		1		5		5	3	1		15
		6.7		33.3		33.3	20.0	6.7		7.0
		7.1		8.9		7.9	25.0	100.0		
7 Provide large lo		5	6	5	4	1			3	24
		20.8	25.0	20.8	16.7	4.2			12.5	11.3
		35.7	22.2	8.9	11.8	1.6			50.0	
10 Increase fence h				2	1					3
				66.7	33.3					1.4
				3.6	2.9					
Column Total		14 6.6	27 12.7	56 26.3	34 16.0	63 29.6	12 5.6	1 .5	6 2.8	213 100.0

Table 9-27

MODELM2 Model modifications by BGRESEDU Respondent education

MODELM2	BGRESEDU 1 Primary S	2 Secondary S	3 High S	4 Diploma	5 University	6 MS	7 Ph.D.	9 Illiterate	Row Total
0	13	26	50	31	60	10	1	6	197
	6.6	13.2	25.4	15.7	30.5	5.1	.5	3.0	92.5
	92.9	96.3	89.3	91.2	95.2	83.3	100.0	100.0	
2	1		3	2	1				7
Two sides setbac	14.3		42.9	28.6	14.3				3.3
	7.1		5.4	5.9	1.6				
4		1	1	1	1	2			6
Setback from one		16.7	16.7	16.7	16.7	33.3			2.8
		3.7	1.8	2.9	1.6	16.7			
5			2		1				3
Make windows pre			66.7		33.3				1.4
			3.6		1.6				
Column Total	14 6.6	27 12.7	56 26.3	34 16.0	63 29.6	12 5.6	1 .5	6 2.8	213 100.0

Table 9-28

VILLCY Is courtyard H. exposed less to overlook by BGRESEDU Respondent education

VILLCY	BGRESEDU 1 Primary S	2 Secondary S	3 High S	4 Diploma	5 University	6 MS	7 Ph.D.	9 Illiterate	Row Total
0			1		2				3
									1.4
1	11	22	46	23	42	8	1	4	157
Yes									73.7
4	3	5	9	11	19	4		2	53
Yes, but									24.9
Column Total	14 6.6	27 12.7	56 26.3	34 16.0	63 29.6	12 5.6	1 .5	6 2.8	213 100.0

Table 9-29

VILLCYM Yes, but by BGRESEDU Respondent education

VILLCYM Row Pct / Col Pct	BGRESEDU 1 Primary S	2 Secondary S	3 High S	4 Diploma	5 University	6 MS	7 Ph.D.	9 Illiterate	Row Total
0	11	22	46	23	44	8	1	4	159
	6.9	13.8	28.9	14.5	27.7	5.0	.6	2.5	74.6
	78.6	81.5	82.1	67.6	69.8	66.7	100.0	66.7	
1				3	11	1			15
get security pro				20.0	73.3	6.7			7.0
				8.8	17.5	8.3			
2	1		4	4	4	1		1	15
house will be in	6.7		26.7	26.7	26.7	6.7		6.7	7.0
	7.1		7.1	11.8	6.3	8.3		16.7	
3	2	4	3	4	4	2		1	20
Setback better f	10.0	20.0	15.0	20.0	20.0	10.0		5.0	9.4
	14.3	14.8	5.4	11.8	6.3	16.7		16.7	
4		1	3						4
but with large l		25.0	75.0						1.9
		3.7	5.4						
Column Total	14 6.6	27 12.7	56 26.3	34 16.0	63 29.6	12 5.6	1 .5	6 2.8	213 100.0

Table 9-30

SBREGUL Required setback regulations by BGRESAG Respondent age

SBREGUL	BGRESAG <20 (1)	20-30 (2)	31-40 (3)	41-50 (4)	>50 (5)	Row Total
0			2	1		3
			66.7	33.3		1.4
			2.0	3.3		
1	1	30	41	14	3	89
Knows exact req	1.1	33.7	46.1	15.7	3.4	41.8
	33.3	42.3	41.0	46.7	33.3	
2	2	37	54	15	6	114
Knows about setb	1.8	32.5	47.4	13.2	5.3	53.5
	66.7	52.1	54.0	50.0	66.7	
4		4	3			7
Don't know		57.1	42.9			3.3
		5.6	3.0			
Column Total	3 1.4	71 33.3	100 46.9	30 14.1	9 4.2	213 100.0

Table 9-31

RSBUSB1 Reason for building with setback by BGRESAG Respondent age

RSBUSB1	BGRESAG <20 (1)	20-30 (2)	31-40 (3)	41-50 (4)	>50 (5)	Row Total
0			1			1
			100.0			.5
			1.0			
1		2	6	4	1	13
Providing space		15.4	46.2	30.8	7.7	6.1
		2.8	6.0	13.3	11.1	
2	1	34	44	12	4	95
Municipality reg	1.1	35.8	46.3	12.6	4.2	44.6
	33.3	47.9	44.0	40.0	44.4	
3		3	3	1	1	8
Security reasons		37.5	37.5	12.5	12.5	3.8
		4.2	3.0	3.3	11.1	
4		16	24	10	3	53
House ventilatio		30.2	45.3	18.9	5.7	24.9
		22.5	24.0	33.3	33.3	
5	1	14	22	3		40
Provide gardens	2.5	35.0	55.0	7.5		18.8
	33.3	19.7	22.0	10.0		
6	1	2				3
Prevent noise fr	33.3	66.7				1.4
	33.3	2.8				
Column Total	3 1.4	71 33.3	100 46.9	30 14.1	9 4.2	213 100.0

Table 9-32

RSBUSB2 Reason for building with setback by BGRESAG Respondent age

RSBUSB2	BGRESAG <20 (1)	20-30 (2)	31-40 (3)	41-50 (4)	>50 (5)	Row Total
0	1	20	31	6	2	60
	1.7	33.3	51.7	10.0	3.3	28.2
	33.3	28.2	31.0	20.0	22.2	
1 Providing space		5	10	4	1	20
		25.0	50.0	20.0	5.0	9.4
		7.0	10.0	13.3	11.1	
2 Municipality reg	2	17	19	11	2	51
	3.9	33.3	37.3	21.6	3.9	23.9
	66.7	23.9	19.0	36.7	22.2	
3 Security reasons		1	2			3
		33.3	66.7			1.4
4 House ventilatio		14	23	3	2	42
		33.3	54.8	7.1	4.8	19.7
		19.7	23.0	10.0	22.2	
5 Provide gardens		10	11	4	2	27
		37.0	40.7	14.8	7.4	12.7
		14.1	11.0	13.3	22.2	
6 Car parking&acce		4	4	2		10
		40.0	40.0	20.0		4.7
		5.6	4.0	6.7		
Column Total	3	71	100	30	9	213
	1.4	33.3	46.9	14.1	4.2	100.0

Table 9-33

MODEL Chosen model by BGRESAG Respondent age

MODEL	Count / Row Pct / Col Pct	BGRESAG <20 (1)	20-30 (2)	31-40 (3)	41-50 (4)	>50 (5)	Row Total
1 Villa		1	25	27	12	4	69
		1.4	36.2	39.1	17.4	5.8	32.4
		33.3	35.2	27.0	40.0	44.4	
2 C/Y Villa		1	26	40	10	2	79
		1.3	32.9	50.6	12.7	2.5	37.1
		33.3	36.6	40.0	33.3	22.2	
3 C/Y attached hou		1	20	33	8	3	65
		1.5	30.8	50.8	12.3	4.6	30.5
		33.3	28.2	33.0	26.7	33.3	
Column Total		3	71	100	30	9	213
		1.4	33.3	46.9	14.1	4.2	100.0

Table 9-34

MODELM1 Model modifications by BGRESAG Respondent age

MODELM1	BGRESAG <20 (1)	20-30 (2)	31-40 (3)	41-50 (4)	>50 (5)	Row Total
0	2	43	61	18	3	127
	1.6	33.9	48.0	14.2	2.4	59.6
	66.7	60.6	61.0	60.0	33.3	
1 Provide semi-cou		2		2		4
		50.0		50.0		1.9
		2.8		6.7		
2 Two sides setbac		5	10		1	16
		31.3	62.5		6.3	7.5
		7.0	10.0		11.1	
3 openings to one/			2	1		3
			66.7	33.3		1.4
			2.0	3.3		
4 Building with no	1	9	2	2	1	15
	6.7	60.0	13.3	13.3	6.7	7.0
	33.3	12.7	2.0	6.7	11.1	
5 Setback from str			4	1	1	6
			66.7	16.7	16.7	2.8
			4.0	3.3	11.1	
6 No setback from		2	10	2	1	15
		13.3	66.7	13.3	6.7	7.0
		2.8	10.0	6.7	11.1	
7 Provide large lo		9	9	4	2	24
		37.5	37.5	16.7	8.3	11.3
		12.7	9.0	13.3	22.2	
10 Increase fence h		1	2			3
		33.3	66.7			1.4
		1.4	2.0			
Column Total	3	71	100	30	9	213
	1.4	33.3	46.9	14.1	4.2	100.0

Table 9-35

MODELM2 Model modifications by BGRESAG Respondent age

MODELM2	BGRESAG <20 (1)	20-30 (2)	31-40 (3)	41-50 (4)	>50 (5)	Row Total
0	3	66	92	27	9	197
	1.5	33.5	46.7	13.7	4.6	92.5
	100.0	93.0	92.0	90.0	100.0	
2 Two sides setbac		3	4			7
		42.9	57.1			3.3
		4.2	4.0			
4 Setback from one		2	2	2		6
		33.3	33.3	33.3		2.8
		2.8	2.0	6.7		
5 Make windows pre			2	1		3
			66.7	33.3		1.4
			2.0	3.3		
Column Total	3	71	100	30	9	213
	1.4	33.3	46.9	14.1	4.2	100.0

Table 9-36

BGRESAG Respondent age by VILLCY Is courtyard H. exposed less to overlook

VILLCY

BGRESAG	Count / Row Pct / Col Pct	Yes 0	Yes, but 1	4	Row Total
1			3		3
<20			100.0		1.4
			1.9		
2		1	59	11	71
20-30		1.4	83.1	15.5	33.3
		33.3	37.6	20.8	
3		2	68	30	100
31-40		2.0	68.0	30.0	46.9
		66.7	43.3	56.6	
4			19	11	30
41-50			63.3	36.7	14.1
			12.1	20.8	
5			8	1	9
>50			88.9	11.1	4.2
			5.1	1.9	
Column Total		3 1.4	157 73.7	53 24.9	213 100.0

Table 9-37

VILLCYM Yes, but by BGRESAG Respondent age

BGRESAG

VILLCYM	Count / Row Pct / Col Pct	<20 1	20-30 2	31-40 3	41-50 4	>50 5	Row Total
0		3	59	70	19	8	159
		1.9	37.1	44.0	11.9	5.0	74.6
		100.0	83.1	70.0	63.3	88.9	
1			4	7	4		15
get security pro			26.7	46.7	26.7		7.0
			5.6	7.0	13.3		
2			2	11	2		15
house will be in			13.3	73.3	13.3		7.0
			2.8	11.0	6.7		
3			4	11	4	1	20
Setback better f			20.0	55.0	20.0	5.0	9.4
			5.6	11.0	13.3	11.1	
4			2	1	1		4
but with large l			50.0	25.0	25.0		1.9
			2.8	1.0	3.3		
Column Total		3 1.4	71 33.3	100 46.9	30 14.1	9 4.2	213 100.0

Table 9-38

RSBUSB1 Reason for building with setback by BGRESCO1 No. of countries visited

RSBUSB1	BGRESCO1 0	1	2	3	4	5	Inapplicable 9	Row Total
0			1					1
			100.0					.5
			1.8					
1	4	2	3	1	3			13
Providing space	30.8	15.4	23.1	7.7	23.1			6.1
	6.9	3.6	5.3	3.8	27.3			
2	25	26	25	11	3	2	3	95
Municipality reg	26.3	27.4	26.3	11.6	3.2	2.1	3.2	44.6
	43.1	47.3	43.9	42.3	27.3	100.0	75.0	
3	3	2	1	2				8
Security reasons	37.5	25.0	12.5	25.0				3.8
	5.2	3.6	1.8	7.7				
4	19	13	13	6	1		1	53
House ventilatio	35.8	24.5	24.5	11.3	1.9		1.9	24.9
	32.8	23.6	22.8	23.1	9.1		25.0	
5	7	10	13	6	4			40
Provide gardens	17.5	25.0	32.5	15.0	10.0			18.8
	12.1	18.2	22.8	23.1	36.4			
6		2	1					3
Prevent noise fr		66.7	33.3					1.4
		3.6	1.8					
Column Total	58 27.2	55 25.8	57 26.8	26 12.2	11 5.2	2 .9	4 1.9	213 100.0

Table 9-39

RSBUSB2 Reason for building with setback by BGRESCO1 No. of countries visited

RSBUSB2	BGRESCO1 0	1	2	3	4	5	Inapplicable 9	Row Total
0	21	18	14	3	3		1	60
	35.0	30.0	23.3	5.0	5.0		1.7	28.2
	36.2	32.7	24.6	11.5	27.3		25.0	
1	4	7	4	4	1			20
Providing space	20.0	35.0	20.0	20.0	5.0			9.4
	6.9	12.7	7.0	15.4	9.1			
2	15	15	14	4	2		1	51
Municipality reg	29.4	29.4	27.5	7.8	3.9		2.0	23.9
	25.9	27.3	24.6	15.4	18.2		25.0	
3			2			1		3
Security reasons			66.7			33.3		1.4
			3.5			50.0		
4	8	10	11	7	4		2	42
House ventilatio	19.0	23.8	26.2	16.7	9.5		4.8	19.7
	13.8	18.2	19.3	26.9	36.4		50.0	
5	8	2	9	6	1	1		27
Provide gardens	29.6	7.4	33.3	22.2	3.7	3.7		12.7
	13.8	3.6	15.8	23.1	9.1	50.0		
6	2	3	3	2				10
Car parking&acce	20.0	30.0	30.0	20.0				4.7
	3.4	5.5	5.3	7.7				
Column Total	58 27.2	55 25.8	57 26.8	26 12.2	11 5.2	2 .9	4 1.9	213 100.0

Table 9-40

SBREGUL Required setback regulations by BGRESCO1 No. of countries visited

SBREGUL	Count / Row Pct / Col Pct	BGRESCO1 0	1	2	3	4	5	Inapplicable 9	Row Total
0			1	2					3
			33.3	66.7					1.4
			1.8	3.5					
1		29	21	24	9	2	1	3	89
Knows exact req		32.6	23.6	27.0	10.1	2.2	1.1	3.4	41.8
		50.0	38.2	42.1	34.6	18.2	50.0	75.0	
2		26	32	30	16	8	1	1	114
Knows about setb		22.8	28.1	26.3	14.0	7.0	.9	.9	53.5
		44.8	58.2	52.6	61.5	72.7	50.0	25.0	
4		3	1	1	1	1			7
Don't know		42.9	14.3	14.3	14.3	14.3			3.3
		5.2	1.8	1.8	3.8	9.1			
Column Total		58 27.2	55 25.8	57 26.8	26 12.2	11 5.2	2 .9	4 1.9	213 100.0

Table 9-41

MODEL Chosen model by BGRESCO1 No. of countries visited

MODEL	Count / Row Pct / Col Pct	BGRESCO1 0	1	2	3	4	5	Inapplicable 9	Row Total
1		25	12	14	12	5		1	69
Villa		36.2	17.4	20.3	17.4	7.2		1.4	32.4
		43.1	21.8	24.6	46.2	45.5		25.0	
2		23	23	19	7	3	2	2	79
C/Y Villa		29.1	29.1	24.1	8.9	3.8	2.5	2.5	37.1
		39.7	41.8	33.3	26.9	27.3	100.0	50.0	
3		10	20	24	7	3		1	65
C/Y attached hou		15.4	30.8	36.9	10.8	4.6		1.5	30.5
		17.2	36.4	42.1	26.9	27.3		25.0	
Column Total		58 27.2	55 25.8	57 26.8	26 12.2	11 5.2	2 .9	4 1.9	213 100.0

Table 9-42

RSBUSB1 Reason for building with setback by BGRESDS Respondent participate in design

RSBUSB1	BGRESDS Yes (1)	BGRESDS No (2)	Row Total
0		1	1
		100.0	.5
		1.1	
1 Providing space	9	4	13
	69.2	30.8	6.1
	7.6	4.3	
2 Municipality reg	51	44	95
	53.7	46.3	44.8
	42.9	47.3	
3 Security reasons	4	4	8
	50.0	50.0	3.8
	3.4	4.3	
4 House ventilatio	32	21	53
	60.4	39.6	25.0
	26.9	22.6	
5 Provide gardens	22	17	39
	56.4	43.6	18.4
	18.5	18.3	
6 Prevent noise fr	1	2	3
	33.3	66.7	1.4
	.8	2.2	
Column Total	119	93	212
	56.1	43.9	100.0

Table 9-43

RSBUSB2 Reason for building with setback by BGRESDS Respondent participate in design

RSBUSB2	BGRESDS Yes (1)	BGRESDS No (2)	Row Total
0	29	31	60
	48.3	51.7	28.3
	24.4	33.3	
1 Providing space	11	8	19
	57.9	42.1	9.0
	9.2	8.6	
2 Municipality reg	32	19	51
	62.7	37.3	24.1
	26.9	20.4	
3 Security reasons		3	3
		100.0	1.4
		3.2	
4 House ventilatio	26	16	42
	61.9	38.1	19.8
	21.8	17.2	
5 Provide gardens	13	14	27
	48.1	51.9	12.7
	10.9	15.1	
6 Car parking&acce	8	2	10
	80.0	20.0	4.7
	6.7	2.2	
Column Total	119	93	212
	56.1	43.9	100.0

Table 9-44

SBREGUL Required setback regulations by BGRESDS Respondent participate in design

SBREGUL	BGRESDS Yes (1)	BGRESDS No (2)	Row Total
0	1	2	3
	33.3	66.7	1.4
	.8	2.2	
1 Knows exact req	54	35	89
	60.7	39.3	42.0
	45.4	37.6	
2 Knows about setb	61	52	113
	54.0	46.0	53.3
	51.3	55.9	
4 Don't know	3	4	7
	42.9	57.1	3.3
	2.5	4.3	
Column Total	119	93	212
	56.1	43.9	100.0

Table 9-45

MODEL Chosen model by BGRESDS Respondent participate in design

MODEL	BGRESDS Yes (1)	BGRESDS No (2)	Row Total
1 Villa	42	26	68
	61.8	38.2	32.1
	35.3	28.0	
2 C/Y Villa	40	39	79
	50.6	49.4	37.3
	33.6	41.9	
3 C/Y attached hou	37	28	65
	56.9	43.1	30.7
	31.1	30.1	
Column Total	119	93	212
	56.1	43.9	100.0

Table 9-46

MODEL Chosen model by PRI3D Overlooking 3D(WomanXChild)

MODEL	PRI3D Very strong (1)	Strong (2)	Medium (3)	Weak (4)	No overlooking (5)	Row Total
1 Villa	6	8	26	16	13	69
	8.7	11.6	37.7	23.2	18.8	32.4
2 C/Y Villa	7	12	27	15	18	79
	8.9	15.2	34.2	19.0	22.8	37.1
3 C/Y attached hou	5	16	11	24	9	65
	7.7	24.6	16.9	36.9	13.8	30.5
Column Total	18	36	64	55	40	213
	8.5	16.9	30.0	25.8	18.8	100.0

Table 9-47

MODEL Chosen model by PRI1B Overlooking 1B(ManXOldman)

	PRI1B				
Count / Row Pct	Very str ong 1	Strong 2	Medium 3	Weak 4	Row Total
MODEL					
1 Villa	16 / 23.2	29 / 42.0	23 / 33.3	1 / 1.4	69 / 32.4
2 C/Y Villa	18 / 22.8	38 / 48.1	18 / 22.8	5 / 6.3	79 / 37.1
3 C/Y attached hou	6 / 9.2	42 / 64.6	15 / 23.1	2 / 3.1	65 / 30.5
Column Total	40 / 18.8	109 / 51.2	56 / 26.3	8 / 3.8	213 / 100.0

Table 9-48

MODEL Chosen model by PRI4A Overlooking 4A(ChildXMan)

	PRI4A					
Row Pct	Very str ong 1	Strong 2	Medium 3	Weak 4	No overl ooking 5	Row Total
MODEL						
1 Villa	5 / 7.2	15 / 21.7	29 / 42.0	17 / 24.6	3 / 4.3	69 / 32.4
2 C/Y Villa	6 / 7.6	21 / 26.6	21 / 26.6	22 / 27.8	9 / 11.4	79 / 37.1
3 C/Y attached hou	5 / 7.7	27 / 41.5	14 / 21.5	15 / 23.1	4 / 6.2	65 / 30.5
Column Total	16 / 7.5	63 / 29.6	64 / 30.0	54 / 25.4	16 / 7.5	213 / 100.0

Table 9-49

AREAM2 Lot area m2 by SBREGUL Required setback regulations

	SBREGUL				
Row Pct / Col Pct	Knows ex acte req 0	Knows ab out setb 1	Don't kn ow 2	4	Row Total
AREAM2					
1 <450		44 / 59.5 / 49.4	30 / 40.5 / 26.3		74 / 34.7
2 450-600	1 / 5.0 / 33.3	6 / 30.0 / 6.7	11 / 55.0 / 9.6	2 / 10.0 / 28.6	20 / 9.4
3 601-900	2 / 1.8 / 66.7	38 / 34.9 / 42.7	66 / 60.6 / 57.9	3 / 2.8 / 42.9	109 / 51.2
4 901-1500		1 / 12.5 / 1.1	5 / 62.5 / 4.4	2 / 25.0 / 28.6	8 / 3.8
5 >1500			2 / 100.0		2 / .9
Column Total	3 / 1.4	89 / 41.8	114 / 53.5	7 / 3.3	213 / 100.0

Table 9-50

AREAM2 Lot area m2 by RSBUSB1 Reason for building with setback

AREAM2	Row Pct / Col Pct	RSBUSB1 0 Providing space	1 Municipality reg	2 Security reasons	3 House ventilation	4 Provide gardens	5 Prevent noise fr	6 Row Total
1 <450			4	35	2	19	11	3	74
			5.4	47.3	2.7	25.7	14.9	4.1	34.7
			30.8	36.8	25.0	35.8	27.5	100.0	
2 450-600		1	1	8		7	3		20
		5.0	5.0	40.0		35.0	15.0		9.4
		100.0	7.7	8.4		13.2	7.5		
3 601-900			6	51	6	26	20		109
			5.5	46.8	5.5	23.9	18.3		51.2
			46.2	53.7	75.0	49.1	50.0		
4 901-1500			1	1		1	5		8
			12.5	12.5		12.5	62.5		3.8
5 >1500			1				1		2
			50.0				50.0		.
Column Total		1 .5	13 6.1	95 44.6	8 3.8	53 24.9	40 18.8	3 1.4	213 100.0

Table 9-51

AREAM2 Lot area m2 by RSBUSB2 Reason for building with setback

AREAM2	Count / Row Pct / Col Pct	RSBUSB2 0 Providing space	1 Municipality reg	2 Security reasons	3 House ventilation	4 Provide gardens	5 Car parking&acces	6 Row Total
1 <450		35	4	22	1	7	3	2	74
		47.3	5.4	29.7	1.4	9.5	4.1	2.7	34.7
		58.3	20.0	43.1	33.3	16.7	11.1	20.0	
2 450-600		6		5	1	3	3	2	20
		30.0		25.0	5.0	15.0	15.0	10.0	9.4
		10.0		9.8	33.3	7.1	11.1	20.0	
3 601-900		17	15	22	1	28	21	5	109
		15.6	13.8	20.2	.9	25.7	19.3	4.6	51.2
		28.3	75.0	43.1	33.3	66.7	77.8	50.0	
4 901-1500		2	1	2		2		1	8
		25.0	12.5	25.0		25.0		12.5	3.8
		3.3	5.0	3.9		4.8		10.0	
5 >1500						2			2
						100.0			.9
						4.8			
Column Total		60 28.2	20 9.4	51 23.9	3 1.4	42 19.7	27 12.7	10 4.7	213 100.0

Table 9-52

AREAM2 Lot area m2 by MODEL Chosen model

AREAM2	MODEL 1 Villa	2 C/Y Villa	3 C/Y attached hou	Row Total
1 <450	30	30	14	74
	40.5	40.5	18.9	34.7
	43.5	38.0	21.5	
2 450-600	4	9	7	20
	20.0	45.0	35.0	9.4
	5.8	11.4	10.8	
3 601-900	31	36	42	109
	28.4	33.0	38.5	51.2
	44.9	45.6	64.6	
4 901-1500	3	3	2	8
	37.5	37.5	25.0	3.8
	4.3	3.8	3.1	
5 >1500	1	1		2
	50.0	50.0		.9
	1.4	1.3		
Column Total	69	79	65	213
	32.4	37.1	30.5	100.0

Table 9-53

EXTRAF.H Height of Extra Fence by RSBUSB1 Reason for building with setback

EXTRAF.H	RSBUSB1 0 Providing space	1 Municipality reg	2 Security reasons	3 House ventilatio	4 Provide gardens	5 Prevent noise fr	6 Row Total
2 1m-2m		1	18		12	5	1	37
		2.7	48.6		32.4	13.5	2.7	17.4
		7.7	18.9		22.6	12.5	33.3	
3 >2m<3m		2	20		9	6		37
		5.4	54.1		24.3	16.2		17.4
		15.4	21.1		17.0	15.0		
4 3m&>		1	13		3	3		20
		5.0	65.0		15.0	15.0		9.4
		7.7	13.7		5.7	7.5		
5 Plane to Add		1	7	1	1	4		14
		7.1	50.0	7.1	7.1	28.6		6.6
		7.7	7.4	12.5	1.9	10.0		
6 Horizontal cover		3	6		5	4		18
		16.7	33.3		27.8	22.2		8.5
		23.1	6.3		9.4	10.0		
7 Horizontal cover			1	2	2	2		7
			14.3	28.6	28.6	28.6		3.3
			1.1	25.0	3.8	5.0		
9 Inapplicable	1	5	30	5	21	16	2	80
	1.3	6.3	37.5	6.3	26.3	20.0	2.5	37.6
	100.0	38.5	31.6	62.5	39.6	40.0	66.7	
Column Total	1	13	95	8	53	40	3	213
	.5	6.1	44.6	3.8	24.9	18.8	1.4	100.0

Table 9-54

EXTRAF.H Height of Extra Fence by RSBUSB2 Reason for building with setback

EXTRAF.H / Row Pct / Col Pct	Providing space 0	Municipality reg 1	Security reasons 2	House ventilation 3	Provide gardens 4	Car parking&access 5	6	Row Total
2	17	1	7		5	4	3	37
1m-2m	45.9	2.7	18.9		13.5	10.8	8.1	17.4
	28.3	5.0	13.7		11.9	14.8	30.0	
3	12	6	5		9	3	2	37
>2m<3m	32.4	16.2	13.5		24.3	8.1	5.4	17.4
	20.0	30.0	9.8		21.4	11.1	20.0	
4	6	2	5		2	2	3	20
3m&>	30.0	10.0	25.0		10.0	10.0	15.0	9.4
	10.0	10.0	9.8		4.8	7.4	30.0	
5			2		7	4	1	14
Plane to Add			14.3		50.0	28.6	7.1	6.6
			3.9		16.7	14.8	10.0	
6	5	1	5	1	3	3		18
Horizontal cover	27.8	5.6	27.8	5.6	16.7	16.7		8.5
	8.3	5.0	9.8	33.3	7.1	11.1		
7	2	1	2		1		1	7
Horizontal cover	28.6	14.3	28.6		14.3		14.3	3.3
	3.3	5.0	3.9		2.4		10.0	
9	18	9	25	2	15	11		80
Inapplicable	22.5	11.3	31.3	2.5	18.8	13.8		37.6
	30.0	45.0	49.0	66.7	35.7	40.7		
Column	60	20	51	3	42	27	10	213
Total	28.2	9.4	23.9	1.4	19.7	12.7	4.7	100.0

Table 9-55

EXTRAF.H Height of Extra Fence by SBREGUL Required setback regulations

SBREGUL

EXTRAF.H / Row Pct / Col Pct	Knows exacte req 0	Knows about req 1	Don't know setback 2	4	Row Total
2		12	24	1	37
1m-2m		32.4	64.9	2.7	17.4
		13.5	21.1	14.3	
3		18	18	1	37
>2m<3m		48.6	48.6	2.7	17.4
		20.2	15.8	14.3	
4	1	12	7		20
3m&>	5.0	60.0	35.0		9.4
	33.3	13.5	6.1		
5		3	11		14
Plane to Add		21.4	78.6		6.6
		3.4	9.6		
6		6	12		18
Horizontal cover		33.3	66.7		8.5
		6.7	10.5		
7		4	3		7
Horizontal cover		57.1	42.9		3.3
		4.5	2.6		
9	2	34	39	5	80
Inapplicable	2.5	42.5	48.8	6.3	37.6
	66.7	38.2	34.2	71.4	
Column	3	89	114	7	213
Total	1.4	41.8	53.5	3.3	100.0

Table 9-56

EXTRAF.H Height of Extra Fence by MODEL Chosen model

EXTRAF.H	MODEL: Villa (1)	C/Y Vill a (2)	C/Y atta ched hou (3)	Row Total
2	10	15	12	37
1m-2m	27.0	40.5	32.4	17.4
	14.5	19.0	18.5	
3	18	10	9	37
>2m<3m	48.6	27.0	24.3	17.4
	26.1	12.7	13.8	
4	10	4	6	20
3m&>	50.0	20.0	30.0	9.4
	14.5	5.1	9.2	
5	9	3	2	14
Plane to Add	64.3	21.4	14.3	6.6
6	6	9	3	18
Horizontal cover	33.3	50.0	16.7	8.5
	8.7	11.4	4.6	
7		2	5	7
Horizontal cover		28.6	71.4	3.3
		2.5	7.7	
9	16	36	28	80
Inapplicable	20.0	45.0	35.0	37.6
	23.2	45.6	43.1	
Column Total	69 32.4	79 37.1	65 30.5	213 100.0

Table 9-57

RSBUSB1 Reason for building with setback by CITY Location

RSBUSB1	CITY: Riyadh (1)	Tabuk (2)	Haqil (3)	Row Total
0	1			1
	100.0			.5
	.8			
1	8	3	2	13
Providing space	61.5	23.1	15.4	6.1
	6.6	4.9	6.7	
2	61	22	12	95
Municipality reg	64.2	23.2	12.6	44.6
	50.0	36.1	40.0	
3	5	3		8
Security reasons	62.5	37.5		3.8
	4.1	4.9		
4	24	15	14	53
House ventilatio	45.3	28.3	26.4	24.9
	19.7	24.6	46.7	
5	23	15	2	40
Provide gardens	57.5	37.5	5.0	18.8
	18.9	24.6	6.7	
6		3		3
Prevent noise fr		100.0		1.4
		4.9		
Column Total	122 57.3	61 28.6	30 14.1	213 100.0

Table 9-58

RSBUSB2 Reason for building with setback by CITY Location

RSBUSB2	CITY: Riyadh (1)	Tabuk (2)	Haqil (3)	Row Total
0	50		10	60
	41.0		33.3	
1 Providing space	14	2	4	20
	70.0	10.0	20.0	9.4
	11.5	3.3	13.3	
2 Municipality reg	19	26	6	51
	37.3	51.0	11.8	23.9
	15.6	42.6	20.0	
3 Security reasons	2	1		3
	66.7	33.3		1.4
	1.6	1.6		
4 House ventilatio	22	14	6	42
	52.4	33.3	14.3	19.7
	18.0	23.0	20.0	
5 Provide gardens	11	12	4	27
	40.7	44.4	14.8	12.7
	9.0	19.7	13.3	
6 Car parking&acce	4	6		10
	40.0	60.0		4.7
	3.3	9.8		
Column Total	122	61	30	213
	57.3	28.6	14.1	100.0

Table 9-59

SBREGUL Required setback regulations by CITY Location

SBREGUL	Count / Row Pct / Col Pct	CITY: Riyadh (1)	Tabuk (2)	Haqil (3)	Row Total
0		1	2		3
		33.3	66.7		1.4
		.8	3.3		
1 Knows exact req.		45	29	15	89
		50.6	32.6	16.9	41.8
		36.9	47.5	50.0	
2 Knows about setb		71	28	15	114
		62.3	24.6	13.2	53.5
		58.2	45.9	50.0	
4 Don't know		5	2		7
		71.4	28.6		3.3
		4.1	3.3		
Column Total		122	61	30	213
		57.3	28.6	14.1	100.0

Table 9-60

VILLCY Is courtyard H. exposed less to overlook by CITY Location

VILLCY	Count / Row Pct / Col Pct	CITY: Riyadh (1)	Tabuk (2)	Haqil (3)	Row Total
0		1	2		3
		33.3	66.7		1.4
		.8	3.3		
1 Yes		94	46	17	157
		59.9	29.3	10.8	73.7
		77.0	75.4	56.7	
4 Yes, but		27	13	13	53
		50.9	24.5	24.5	24.9
		22.1	21.3	43.3	
Column Total		122	61	30	213
		57.3	28.6	14.1	100.0

Table 9-61

MODELM1 Model modifications by CITY Location

MODELM1	Row Pct / Col Pct	CITY: Riyadh (1)	Tabuk (2)	Haqil (3)	Row Total
0		86	20	21	127
		67.7	15.7	16.5	59.6
		70.5	32.8	70.0	
1 Provide semi-cou		4			4
		100.0			1.9
		3.3			
2 Two sides setbac		9	7		16
		56.3	43.8		7.5
		7.4	11.5		
3 openings to one/		2	1		3
		66.7	33.3		1.4
		1.6	1.6		
4 Building with no		6	8	1	15
		40.0	53.3	6.7	7.0
		4.9	13.1	3.3	
5 Setback from str		4	2		6
		66.7	33.3		2.8
		3.3	3.3		
6 No setback from		10	4	1	15
		66.7	26.7	6.7	7.0
		8.2	6.6	3.3	
7 Provide large lo		1	16	7	24
		4.2	66.7	29.2	11.3
		.8	26.2	23.3	
10 Increase fence h			3		3
			100.0		1.4
			4.9		
Column Total		122	61	30	213
		57.3	28.6	14.1	100.0

Table 9-62

MODELM2 Model modifications by CITY Location

MODELM2	Row Pct / Col Pct	CITY Riyadh (1)	Tabuk (2)	Haqil (3)	Row Total
0		116	52	29	197
		58.9	26.4	14.7	92.5
		95.1	85.2	96.7	
2 Two sides setbac		1	5	1	7
		14.3	71.4	14.3	3.3
		.8	8.2	3.3	
4 Setback from one		5	1		6
		83.3	16.7		2.8
		4.1	1.6		
5 Make windows pre			3		3
			100.0		1.4
			4.9		
Column Total		122	61	30	213
		57.3	28.6	14.1	100.0

Table 9-63

VILLCY Is courtyard H. exposed less to overlook by CITY Location

VILLCY	Row Pct / Col Pct	CITY Riyadh (1)	Tabuk (2)	Haqil (3)	Row Total
0		1	2		3
		33.3	66.7		1.4
		.8	3.3		
1 Yes		94	46	17	157
		59.9	29.3	10.8	73.7
		77.0	75.4	56.7	
4 Yes, but		27	13	13	53
		50.9	24.5	24.5	24.9
		22.1	21.3	43.3	
Column Total		122	61	30	213
		57.3	28.6	14.1	100.0

Table 9-64

VILLCYM Yes, but by CITY Location

VILLCYM	Row Pct / Col Pct	CITY Riyadh (1)	Tabuk (2)	Haqil (3)	Row Total
0		95	48	16	159
		59.7	30.2	10.1	74.6
		77.9	78.7	53.3	
1 get security pro		15			15
		100.0			7.0
		12.3			
2 house will be in		5	8	2	15
		33.3	53.3	13.3	7.0
		4.1	13.1	6.7	
3 Setback better f		7	5	8	20
		35.0	25.0	40.0	9.4
		5.7	8.2	26.7	
4 but with large l				4	4
				100.0	1.9
				13.3	
Column Total		122	61	30	213
		57.3	28.6	14.1	100.0

Table 9-65

RSBUSB1 Reason for building with setback by AREA Neighbourhood

RSBUSB1	AREA Rayan 1	Fahad 2	Erija 3	Shifa 4	Suliman ya 5	Nahdha 6	Dhaharah 7	Row Total
0				1				1
				100.0				.5
				3.3				
1	1	4	2	1	2	1	2	13
Providing space	7.7	30.8	15.4	7.7	15.4	7.7	15.4	6.1
	3.2	12.5	6.9	3.3	6.5	3.3	6.7	
2	13	16	23	9	18	4	12	95
Municipality reg	13.7	16.8	24.2	9.5	18.9	4.2	12.6	44.6
	41.9	50.0	79.3	30.0	58.1	13.3	40.0	
3	2		1	2	2	1		8
Security reasons	25.0		12.5	25.0	25.0	12.5		3.8
	6.5		3.4	6.7	6.5	3.3		
4	6	5	1	12	4	11	14	53
House ventilatio	11.3	9.4	1.9	22.6	7.5	20.8	26.4	24.9
	19.4	15.6	3.4	40.0	12.9	36.7	46.7	
5	9	7	2	5	5	10	2	40
Provide gardens	22.5	17.5	5.0	12.5	12.5	25.0	5.0	18.8
	29.0	21.9	6.9	16.7	16.1	33.3	6.7	
6						3		3
Prevent noise fr						100.0		1.4
						10.0		
Column Total	31 14.6	32 15.0	29 13.6	30 14.1	31 14.6	30 14.1	30 14.1	213 100.0

Table 9-66

RSBUSB2 Reason for building with setback by AREA Neighbourhood

RSBUSB2	AREA Rayan 1	Fahad 2	Erija 3	Shifa 4	Suliman ya 5	Nahdha 6	Dhaharah 7	Row Total
0	7	8	27	8			10	60
	11.7	13.3	45.0	13.3			16.7	28.2
	22.6	25.0	93.1	26.7			33.3	
1	6	6		2	2		4	20
Providing space	30.0	30.0		10.0	10.0		20.0	9.4
	19.4	18.8		6.7	6.5		13.3	
2	6	5	2	6	5	21	6	51
Municipality reg	11.8	9.8	3.9	11.8	9.8	41.2	11.8	23.9
	19.4	15.6	6.9	20.0	16.1	70.0	20.0	
3		2				1		3
Security reasons		66.7				33.3		1.4
		6.3				3.3		
4	7	8		7	10	4	6	42
House ventilatio	16.7	19.0		16.7	23.8	9.5	14.3	19.7
	22.6	25.0		23.3	32.3	13.3	20.0	
5	3	3		5	11	1	4	27
Provide gardens	11.1	11.1		18.5	40.7	3.7	14.8	12.7
	9.7	9.4		16.7	35.5	3.3	13.3	
6	2			2	3	3		10
Car parking&acce	20.0			20.0	30.0	30.0		4.7
	6.5			6.7	9.7	10.0		
Column Total	31 14.6	32 15.0	29 13.6	30 14.1	31 14.6	30 14.1	30 14.1	213 100.0

Table 9-67

SBREGUL Required setback regulations by AREA Neighbourhood

SBREGUL	AREA: Rayan (1)	Fahad (2)	Erija (3)	Shifa (4)	Suliman ya (5)	Nahdha (6)	Dhaharah (7)	Row Total
0				1	2			3
				33.3	66.7			1.4
				3.3	6.5			
1	6	11	18	10	9	20	15	89
Knows exact req.	6.7	12.4	20.2	11.2	10.1	22.5	16.9	41.8
	19.4	34.4	62.1	33.3	29.0	66.7	50.0	
2	23	21	11	16	19	9	15	114
Knows about setb	20.2	18.4	9.6	14.0	16.7	7.9	13.2	53.5
	74.2	65.6	37.9	53.3	61.3	30.0	50.0	
4	2			3	1	1		7
Don't know	28.6			42.9	14.3	14.3		3.3
	6.5			10.0	3.2	3.3		
Column Total	31	32	29	30	31	30	30	213
	14.6	15.0	13.6	14.1	14.6	14.1	14.1	100.0

Table 9-68

MODEL Chosen model by AREA Neighbourhood

MODEL	Count / Row Pct / Col Pct	AREA: Rayan (1)	Fahad (2)	Erija (3)	Shifa (4)	Suliman ya (5)	Nahdha (6)	Dhaharah (7)	Row Total
1		9	8	19	1	12	6	14	69
Villa		13.0	11.6	27.5	1.4	17.4	8.7	20.3	32.4
		29.0	25.0	65.5	3.3	38.7	20.0	46.7	
2		13	20	10	10	1	13	12	79
C/Y Villa		16.5	25.3	12.7	12.7	1.3	16.5	15.2	37.1
		41.9	62.5	34.5	33.3	3.2	43.3	40.0	
3		9	4		19	18	11	4	65
C/Y attached hou		13.8	6.2		29.2	27.7	16.9	6.2	30.5
		29.0	12.5		63.3	58.1	36.7	13.3	
Column Total		31	32	29	30	31	30	30	213
		14.6	15.0	13.6	14.1	14.6	14.1	14.1	100.0

Table 9-69

MODELM1 Model modifications by AREA Neighbourhood

MODELM1	Row Pct / Col Pct	AREA Rayan (1)	Fahad (2)	Erija (3)	Shifa (4)	Suliman ya (5)	Nahdha (6)	Dhaharah (7)	Row Total
0		21	22	27	16	11	9	21	127
		16.5	17.3	21.3	12.6	8.7	7.1	16.5	59.6
		67.7	68.8	93.1	53.3	35.5	30.0	70.0	
1		2	2						4
Provide semi-cou		50.0	50.0						1.9
		6.5	6.3						
2		5	1		3	6	1		16
Two sides setbac		31.3	6.3		18.8	37.5	6.3		7.5
		16.1	3.1		10.0	19.4	3.3		
3			2			1			3
openings to one/			66.7			33.3			1.4
			6.3			3.2			
4		1	1		4	5	3	1	15
Building with no		6.7	6.7		26.7	33.3	20.0	6.7	7.0
		3.2	3.1		13.3	16.1	10.0	3.3	
5		2			2	2			6
Setback from str		33.3			33.3	33.3			2.8
		6.5			6.7	6.5			
6			4	1	5	3	1	1	15
No setback from			26.7	6.7	33.3	20.0	6.7	6.7	7.0
			12.5	3.4	16.7	9.7	3.3	3.3	
7				1			16	7	24
Provide large lo				4.2			66.7	29.2	11.3
				3.4			53.3	23.3	
10						3			3
Increase fence h						100.0			1.4
						9.7			
Column Total		31	32	29	30	31	30	30	213
		14.6	15.0	13.6	14.1	14.6	14.1	14.1	100.0

Table 9-70

MODELM2 Model modifications by AREA Neighbourhood

MODELM2	Row Pct / Col Pct	AREA Rayan (1)	Fahad (2)	Erija (3)	Shifa (4)	Suliman ya (5)	Nahdha (6)	Dhaharah (7)	Row Total
0		25	32	29	30	28	24	29	197
		12.7	16.2	14.7	15.2	14.2	12.2	14.7	92.5
		80.6	100.0	100.0	100.0	90.3	80.0	96.7	
2		1					5	1	7
Two sides setbac		14.3					71.4	14.3	3.3
		3.2					16.7	3.3	
4		5					1		6
Setback from one		83.3					16.7		2.8
		16.1					3.3		
5						3			3
Make windows pre						100.0			1.4
						9.7			
Column Total		31	32	29	30	31	30	30	213
		14.6	15.0	13.6	14.1	14.6	14.1	14.1	100.0

Table 9-71

MODELM1 Model modifications by AREA Neighbourhood
For the respondents choosing the attached house form only

MODELM1	AREA Rayan 1	Fahad 2	Shifa 4	Suliman ya 5	Nahdha 6	Dhaharah 7	Row Total
0			5	1		1	7
							10.8
1 Provide semi-cou	2						2
							3.1
2 Two sides setbac	4	1	3	6	1		15
							23.1
3 openings to one/		1		1			2
							3.1
4 Building with no	1		4	5	3	1	14
							21.5
5 Setback from str	2		2	2			6
							9.2
6 No setback from		2	5	3	1	1	12
							18.5
7 Provide large lo					6	1	7
							10.8
Column	9	4	19	18	11	4	65
Total	13.8	6.2	29.2	27.7	16.9	6.2	100.0

Table 9-72

MODELM2 Model modifications by AREA Neighbourhood
For the respondents choosing the attached house form only

MODELM2	AREA Rayan 1	Fahad 2	Shifa 4	Suliman ya 5	Nahdha 6	Dhaharah 7	Row Total
0	3	4	19	18	5	3	52
							80.0
2 Two sides setbac	1				5	1	7
							10.8
Setback from one	5				1		9.2
Column	9	4	19	18	11	4	65
Total	13.8	6.2	29.2	27.7	16.9	6.2	100.0

Table 9-73

VILLCY Is courtyard H. exposed less to overlook by AREA Neighbourhood

VILLCY	Row Pct / Col Pct	AREA Rayan 1	Fahad 2	Erija 3	Shifa 4	Suliman ya 5	Nahdha 6	Dhaharah 7	Row Total
0					1	2			3
					33.3	66.7			1.4
					3.3	6.5			
1 Yes		26	12	28	28	22	24	17	157
		16.6	7.6	17.8	17.8	14.0	15.3	10.8	73.7
		83.9	37.5	96.6	93.3	71.0	80.0	56.7	
4 Yes, but		5	20	1	1	7	6	13	53
		9.4	37.7	1.9	1.9	13.2	11.3	24.5	24.9
		16.1	62.5	3.4	3.3	22.6	20.0	43.3	
Column		31	32	29	30	31	30	30	213
Total		14.6	15.0	13.6	14.1	14.6	14.1	14.1	100.0

Table 9-74

VILLCYM Yes, but by AREA Neighbourhood

VILLCYM	AREA	Rayan	Fahad	Erija	Shifa	Suliman ya	Nahdha	Dhaharah	Row Total
0	Count	26	12	28	29	24	24	16	159
	Row Pct	16.4	7.5	17.6	18.2	15.1	15.1	10.1	74.6
	Col Pct	83.9	37.5	96.6	96.7	77.4	80.0	53.3	
1	Count	2	12	1					15
get security pro	Row Pct	13.3	80.0	6.7					7.0
	Col Pct	6.5	37.5	3.4					
2	Count	2	3			6	2	2	15
house will be in	Row Pct	13.3	20.0			40.0	13.3	13.3	7.0
	Col Pct	6.5	9.4			19.4	6.7	6.7	
3	Count	1	5		1	1	4	8	20
Setback better f	Row Pct	5.0	25.0		5.0	5.0	20.0	40.0	9.4
	Col Pct	3.2	15.6		3.3	3.2	13.3	26.7	
4	Count							4	4
but with large l	Row Pct							100.0	1.9
	Col Pct							13.3	
Column Total		31	32	29	30	31	30	30	213
		14.6	15.0	13.6	14.1	14.6	14.1	14.1	100.0